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City of Boston
Town of Brookline

Phase 1 Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project

EOEA #11865

February 2003

Prepared By: CDM
In Association with:

Jason M. Cortell and Associates, Inc.
Pressley Associates, Inc.
Vanasse Hangen Brustlin, Inc.

Final Environmental Impact Report

Volume 2 – Appendices

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Phase 1 Muddy River Project Flood Control, Water Quality and Habitat Enrichment, and Historic Preservation Project

EOEA File No. 11865

Final Environmental Impact Report

Proponents: Boston Parks and Recreation Department
Town of Brookline

Preparers: Camp Dresser & McKee Inc.
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Pressley Associates, Inc.
Vanasse Hangen, Brustlin, Inc.

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Green International Affiliates, Inc.

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List of Appendices

Appendix A – Comment Letters

Appendix B – Regulatory and Agency Correspondence

Appendix C – Emerald Necklace Citizens Advisory Committee Meeting Materials

Appendix D – FEIR Distribution List

Appendix E – Sediment Information

Appendix F – Maintenance Plan

Appendix A

Appendix A
Comment Letters

Muddy River DEIR Comment Index

A	April 16, 2002, Secretary's Certificate on the Draft Environmental Impact Report
B	February 27, 2002, Massachusetts Division of Fisheries and Wildlife
C	March 4, 2002, Edward B. Cutler (CAC Member)
D	March 8, 2002, Massachusetts Division of Marine Fisheries
E	March 14, 2002, Lisa Tucker-Kellogg
F	April 2, 2002, Town of Brookline Department of Public Works
G	April 3, 2002, Brookline GreenSpace Alliance
H	April 8, 2002, Northeastern University
I	April 8, 2002, Medical Academic and Scientific Community Organization, Inc.
J	April 8, 2002, Friends of the Muddy River
K	April 5, 2002, Frances Shedd-Fisher
L	April 5, 2002, Arleyn Levee Landscape Consultant
M	April 8, 2002, Fenway Studios, Inc.
N	April 8, 2002, Boston GreenSpace Alliance
O	April 8, 2002, Emerald Necklace Citizens Advisory Committee
P	April 8, 2002, City of Boston, The Environment Department
Q	April 8, 2002, Bike Boston's Emerald Necklace Greenway Project
R	April 5, 2002, American University
S	April 8, 2002, Massachusetts Metropolitan District Commission
T	April 8, 2002, Charles River Watershed Association
U	April 6, 2002, Emerald Necklace Conservancy
V	April 5, 2002, Brookline Town Meeting Members from Precinct One
W	April 8, 2002, Roger Frymire
X	April 8, 2002, Massachusetts Department of Environmental Protection
Y	April 8, 2002, Massachusetts Department of Environmental Management
Z	April 4, 2002, Town of Brookline, Massachusetts
AA	April 4, 2002, Massachusetts Emergency Management Agency
BB	April 8, 2002, United States Department of the Interior, National Park Service
CC	April 8, 2002 Massachusetts Historical Commission
DD	April 12, 2002 Massachusetts Historical Commission
EE	April 4, 2002, Town of Brookline Conservation Commission
FF	April 5, 2002, Friends of the Carlton Street Footbridge
GG	April 5, 2002, Town of Brookline Preservation Commission
HH	April 4, 2002, Brookline Village Action Groups
II	March 31, 2002, High Street Hill Association
JJ	April 4, 2002, Museum of Fine Arts, Boston
KK	April 8, 2002, The Fenway Alliance
LL	April 11, 2002, Boston Water and Sewer Commission
MM	April 9, 2002, YMCA of Greater Boston
NN	March 8, 2002, Charles Beveridge, Editor Frederick Law Olmstead Papers
OO	April 10, 2002, New England Conservatory
PP	April 9, 2002, Harvard School of Public Health

QQ	April 9, 2002, Massachusetts College of Art
RR	April 8, 2002, Boston Redevelopment Authority
SS	April 8, 2002, Berklee College of Music
TT	November 2, 2002, Friends of the Muddy River

A

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April 16, 2002

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
PROJECT MUNICIPALITY	:Boston and Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Town of Brookline
DATE NOTICED IN MONITOR	:February 9, 2002

As the Secretary of Environmental Affairs, I hereby determine that the Draft Environmental Impact Report (DEIR) submitted on this project **adequately and properly complies** with the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62H) and with its implementing regulations (301 CMR 11.00). As described in a separate Draft Record of Decision (DROD), also issued today, I am also proposing to allow the Charlesgate element of the project to proceed to permitting prior to submission of the Final EIR, subject to certain conditions that are spelled out in the DROD.

Today's certification of the Draft EIR marks a major milestone for the Muddy River Project, and for the Emerald Necklace Master Plan as a whole. The document is the product of several years of hard work by the City of Boston, the Town of Brookline, numerous state and federal agencies, institutions along the Muddy River, groups interested in proper stewardship of public open space, and the dedicated women and men who volunteered so much time and effort on the Citizens Advisory Committee. I wish to thank all the parties involved, congratulate them on a job well done, and ask them to continue to show a spirit of cooperation, civic-mindedness, and attention to

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detail as the Muddy River Project now moves to the Final EIR stage. As discussed below, there remains much work to be done, both in terms of technical analysis and developing appropriate management techniques to protect and preserve the significant public investment in the project area. The pages that follow lay out the scope to guide the next stage of the review process.

It is rare that one project can advance so many worthy public purposes. The Draft EIR describes critically needed improvements in flood control infrastructure, and holds out the promise of rehabilitation of one of the world's great works of landscape architecture, along with improvements in water quality and wildlife habitat. The challenge in bringing together these elements is enormous. I consider the triple objectives of flood control, water quality/habitat enhancement, and historic rehabilitation all to be integral elements of the Muddy River Project. The success of the Project, and the product of our collective efforts over the many years of the project, must be measured by how well we can simultaneously advance all three objectives.

Project Description

This project involves a range of physical improvements and management practices that will produce flood control, water quality improvements, habitat enhancement, landscape restoration, pedestrian and automobile circulation improvements, and building and bridge restoration along the Muddy River. The project constitutes the first phase in the long-term restoration of the entire system of Emerald Necklace parks in Boston and Brookline. This MEPA review is proceeding under a Special Review Procedure (SRP), established in a certificate dated April 29, 1999. Pursuant to the SRP Certificate, a Citizens Advisory Committee (CAC), representing the full range of stakeholders, has been created. The CAC has met regularly over the past three years, and it has reviewed in detail drafts of the DEIR document. The project is also subject to a Memorandum of Understanding (MOU) executed in November 1999, by and between the Executive Office of Environmental Affairs, the Department of Environmental Management, the Massachusetts Emergency Management Agency, the Boston Water and Sewer Commission, the Town of Brookline and the City of Boston.

As described in the DEIR, the project is comprised of six geographic elements: Charlesgate, the Back Bay Fens, the Riverway, and the three ponds within Olmsted Park (Leverett,

Willow, and Wards Ponds). For each element, the DEIR analyzes alternative strategies (including a no-build alternative) and selects a Preferred Alternative. The Preferred Alternative includes the following:

- Charlesgate: removal of waterway obstructions under Ipswich Street; dredging 3,300 cubic yards (c.y.) of sediment and debris; and landscape rehabilitation.
- Back Bay Fens: daylighting culverts at the Fens Bridge and former Sears parking lot to restore the Olmsted-designed shoreline; bank-to-bank dredging to remove 96,500 c.y. of sediment and debris, and 23,500 c.y. of Phragmites; installing new arch culverts under the Riverway and Brookline Avenue; reconstructing roadway storm drain systems; and bank and landscape rehabilitation.
- Riverway: bank-to-bank dredging to remove 20,200 c.y. of sediment and debris, and 10,000 c.y. of Phragmites; reconstructing roadway storm drain systems; and bank and landscape rehabilitation.
- Leverett Pond: dredging to remove 23,900 c.y. of sediment and debris; and bank, island, and landscape rehabilitation.
- Willow Pond: dredging to remove 5,900 c.y. of sediment and debris; and bank, path, and landscape rehabilitation.
- Wards Pond: dredging to remove 15,600 c.y. of sediment and debris; and bank and landscape rehabilitation.

As required by the scope, the Preferred Alternative also includes project-wide Best Management Practices (BMPs) and a maintenance and management plan. The proposed BMPs include both structural and source control BMPs, including street sweeping, catch basin cleaning, and particle separators. The DEIR includes a draft Maintenance Study developed by the proponents, to set standards for park maintenance by the proponents. Finally, the DEIR describes a number of alternative long-term management structures.

The project will require a variance under the Wetlands Protection Act, a 401 Water Quality Certification, a Chapter 91 License, and a Special Waste Determination from the Department of Environmental Protection (DEP), and a Section 404 permit under the Federal Clean Water Act from the U.S. Army Corps of Engineers. The project may also require construction-related permits from the Division of Fisheries and Wildlife. Because the

Emerald Necklace parks are listed on the National and State Registers of Historic Places, the project is subject to review by the Massachusetts Historical Commission, the Boston Landmarks Commission, and the Brookline Preservation Commission. The project is receiving financial assistance from the Commonwealth; therefore, MEPA jurisdiction is broad in scope, extending to all aspects of the project with potential impacts on the environment.

Standard of MEPA Review

MEPA is a process designed to ensure public participation in the environmental review process, to ensure that state permitting agencies have adequate information on which to base their permit decisions, and to ensure that potential environmental impacts are described fully and avoided, minimized, or mitigated to the maximum feasible extent. The MEPA regulations (Section 11.08 (8)(b)(1)) require me to find a Draft EIR adequate if I find that the Draft EIR is generally responsive to the scope and the requirements of the MEPA regulations, and presents a "...reasonably complete and stand-alone description and analysis of the Project and its alternatives, and an assessment of its potential environmental impacts and mitigation measures" (see Section 11.07 (3) of the MEPA regulations).

The Draft EIR has provided enough information to demonstrate that the proponents' preferred alternative generally minimizes environmental impacts, and presents a generally complete description of the Project, its alternatives, and its impacts. Upon review of the Draft EIR and the comments received, I hereby find that the document meets the standard for adequacy contained in the MEPA regulations.

Nonetheless, several important issues remain unresolved in the Draft EIR, and require substantial additional analysis and/or detail in the Final EIR, as described below. In order to find a Final EIR adequate, I must determine that the Draft and Final EIRs together provide "...a complete and definitive description and analysis of the Project and its alternatives, and assessment of its potential environmental impacts and mitigation measures sufficient to allow a Participating Agency to fulfill its obligations in accordance with M.G.L. c. 30, ss. 61 and 301 CMR 11.12(5)." To meet that more rigorous standard, the Final EIR needs to provide more detailed information on wetlands and water quality impacts associated with the proponents' preferred alternative; a more detailed, specific, and enforceable Maintenance and Management Plan; responses to the numerous

detailed and thoughtful comments provided; and responses to the other issues outlined in this Certificate. The Final EIR may incorporate by reference those portions of the Draft EIR that do not require further analysis.

Alternatives

As noted above, the Draft EIR has generally demonstrated that the preferred alternative minimizes overall impacts, and best advances the goals of this important public project. The Draft EIR has also demonstrated that the preferred method of dredging (hydraulic dredging with mechanical dewatering) is generally the least damaging method of implementing the dredging aspects of the preferred alternative. Nonetheless, specific portions of the preferred program (particularly those relating to "over-dredging" in the Back Bay Fens, and dredging and Phragmites removal upstream of the Back Bay Fens) are likely to require a variance from the regulations implementing the Wetlands Protection Act (WPA). The Final EIR should include the alternatives analysis required for the variance process. This issue is discussed in more detail below in the sections on wetlands, rare species, and maintenance and management.

See A1 & A2 Below

Wetlands

The Department of Environmental Protection has determined that at least some aspects of the preferred alternative will require a variance from the WPA regulations. The Draft EIR limits discussion of wetlands variance issues to rare species, and assumes the larger project qualifies as a limited project under 310 C.M.R. 10.53(4). DEP has commented that the limited project status likely applies to most of the dredging and all of the Phragmites removal from the Charlesgate and Back Bay Fens project subareas. However, the dredging and Phragmites removal from the Riverway and Olmsted Park subareas are not likely to be permittable under the WPA regulations (i.e., these elements would require a variance from the WPA regulations).

The Final EIR should contain the information at a level of detail appropriate for MEPA review, and of sufficient detail to determine which aspects of the dredging and Phragmites removal would be permittable under the WPA at the local level, and which aspects would require the proponent to seek a variance from the WPA regulations. A-1

For those subareas where a variance would be required, the Final EIR should demonstrate how the project (both in the immediately affected subarea and as a whole) could meet A-2

the requirements set forth by DEP (particularly those relating to demonstration of an overriding public interest, infeasibility of alternatives, and development of mitigation) to obtain a variance to the WPA regulations. A-2 CONT.

The preferred alternative contains four areas within the Back Bay Fens project subarea where "over-dredging" of sediments is proposed, thereby creating depressions where sediment can settle out. Two similar areas are proposed within the Riverway subarea. Periodic maintenance dredging of these areas would then take place, extending the overall lifetime of the project. DEP has determined that the areas of "over-dredging" constitute in-stream stormwater detention basins, which are not permittable under the WPA regulations (i.e., require a variance). The Final EIR thus needs to include the variance analysis as spelled out above. In the case of Back Bay Fens "over-dredging," the alternatives analysis should include any alternatives required by DEP, but the analysis must also include an alternative that relies on enhanced stormwater management/ BMP implementation in the Muddy River watershed upstream of the Back Bay Fens. As noted in the Maintenance and Management section, this analysis should have the effect of identifying additional maintenance and BMP measures that the proponent must implement in order to protect the substantial public investment in the project. A-3

The Final EIR should also include more detail (both quantitative and qualitative) on alteration and replication of Bordering Vegetated Wetlands (BVW), including identification of all areas that will experience permanent loss of BVW and all areas where BVW replication is proposed. A-4 The Final EIR should also provide more detail on the specifics of the Phragmites removal and replication design. A-5

The Final EIR should include analysis of whether any other invasive species (e.g., Purple Loosestrife, Buckthorn) will be removed, and the proposed methods of removal. A-6

Water Quality/Sediment Management

The Draft EIR does not include much detail on issues related to DEP Water Quality Certification (WQC). The Final EIR should include a much more detailed discussion of WQC issues, including a demonstration that the project meets the applicable performance standards in the WQC regulations. A-7

The areas of "over-dredging" discussed above will also prove unpermittable under WQC regulations absent a demonstration that all other alternatives are infeasible. The Final EIR should include the alternatives analysis required to make this demonstration. To the extent that the alternatives analyses for the wetlands variance overlaps with the analysis for WQC, the Final EIR may combine the analyses, provided that the analysis meets the individual requirements of each permitting program. The WQC alternatives analysis should also include an enhanced stormwater management/ BMP alternative in the upstream watershed, similar to the requirements discussed above for the wetlands variance. A-8 A-9

The Final EIR should analyze the potential for anoxic conditions to develop in areas of "over-dredging," and the potential impacts on water quality and benthic habitat. The Final EIR should also analyze impacts from periodic maintenance dredging on water quality and benthic habitat. A-10 A-11

DEP has raised concerns with the proposed length of the mixing zone and suspended solids limits for use in water quality monitoring. The Final EIR should address these concerns. The Draft EIR describes a generally adequate water quality monitoring program. However, the Final EIR should include more discussion of construction-period water quality performance standards, and the document should identify action thresholds and management responses if the monitoring plan reveals any problems. A-12 A-13

The Final EIR should provide more details on the dewatering process and sediment management in general. DEP has made a number of comments concerning sediment sampling and management protocols. The Final EIR should address these concerns. A-14 A-15

Maintenance and Management

No other issue has generated as much concern among the comments as Maintenance and Management (and the related issue of Best Management Practices). Developing an appropriate maintenance program and management structure for the Muddy River project will prove critical for protecting the public investment being made. I cannot express the importance of this issue better than Frederic Law Olmsted himself, who wrote in 1873 that:

> "The Park Commissioners are trustees and managers for the whole body of owners of a large amount of public property. Their business is of two kinds; that of forming parks [and] that of keeping them. The second is the graver responsibility. The Commissioners are to be holden

to a stricter account if the arrangements they make for it are ill judged or if they delegate it to faithless or indifferent agents."

To that I would only add that proper maintenance and management are critical for achieving all of the project goals, as absent these elements, sediment will quickly reaccumulate in the river, degrading water quality and wildlife habitat and endangering the historic landscape with the direct threat of invasive species and the indirect threat of benign neglect. Lack of proper maintenance and management (or, in Olmsted's terminology, delegation to indifferent agents) over decades has caused the expensive problems we are now struggling to correct.

While the maintenance and management plan in the Draft EIR is a step in the right direction, it does not go far enough to provide assurances that the proponents will satisfactorily execute their ongoing stewardship responsibilities after the immediate dredging and rehabilitation work is completed. My main concern is with the specificity and enforceability of the maintenance commitments made. Obtaining enforceable maintenance and management commitments is a necessary condition for the Final EIR to be found adequate. I also note that such commitments will be necessary for the state permitting agencies to meet their Section 61 obligations, and as conditions for the proponent receiving additional funds from the Commonwealth and from the federal government. A-16

The Final EIR should therefore revise the Maintenance Study contained in the Draft EIR into a performance-based Maintenance and Management Action Plan in the Final EIR, to provide assurance that maintenance responsibilities will be faithfully observed over time. The Plan should specify management structure, staffing, equipment, and procedures. The Plan should establish measurable environmental performance standards for sediment removal, erosion control, water quality, wetland and upland plantings, fish and benthic resources, wildlife resources, culvert maintenance, and structural source control and treatment control BMPs. The Plan should present an acceptable strategy for closing the gap between person hours needed to maintain the project area and the hours currently available. The Plan must not rely on volunteers. While volunteers can and should play a role in maintenance of the parks, trained professional staff is essential to ensure that the resources are managed and maintained appropriately. A-17

The Draft Record of Decision released today aims, in part, to improve the enforceability of maintenance commitments in the entire Muddy River Project area as a condition of allowing work in the Charlesgate subarea to proceed pending completion of the Final EIR. I thus anticipate substantial progress on this issue in the near future.

Based on their current understanding of the project costs, the Town of Brookline Selectmen have included additional funding commitments in their comment letter on the Draft EIR. The Town has agreed to schedule an additional $1.625 million in the Town's next five-year Capital Improvement Program; to include the Town share of Best Management Practices/Operation & Maintenance costs in the Town's long-range financial forecast; and to enter into a revised MOU reflecting the new commitments by the Town and other parties to the agreement. While additional funding commitments (particular for maintenance) may ultimately prove necessary, these are important new commitments that help to address some of the concerns raised. I anticipate that the City of Boston will clarify its financial commitments for maintenance and management during the review period of the Charlesgate DROD. I also anticipate further negotiations with both municipalities on the appropriate level of local funding.

The Draft EIR describes several alternative management structures designed to provide the organizational infrastructure needed to carry out maintenance and management responsibilities. The Final EIR will include selection of a preferred management alternative. The Final EIR should discuss the reasons for selection of the preferred alternative, and should ensure that the management structure is compatible and consistent with the requirements I have laid out in this Certificate and in the Charlesgate Final Record of Decision (assuming the issuance of such a document). A-18

I recognize the need for much additional consultation and negotiation among the government agencies (including EOEA), private organizations, the Citizens Advisory Committee, and other interested parties on this issue.

Best Management Practices

Development and implementation of structural and non-structural Best Management Practices (BMPs) in the project watershed will complement the proper maintenance and management activities discussed above and serve to minimize redeposition of

sediment, thereby extending the life of the capital investments. As such, BMPs are an important part of the environmental mitigation associated with the Muddy River Project.

The proponents have already instituted a number of BMPs in the project watershed, such as elimination of illegal cross connections, street sweeping, and control of Canada Geese at Leverett Pond. The Draft EIR includes recommendations to institute the following:

- BMPs listed under the "Preferred alternative for the project" described on pages 15-19 of the Executive Summary
- Basin wide BMPs discussed on pages 19 and 30 of the Executive Summary
- Summary of BMP alternatives on pages 2-112 to 2-114 recommeded for inclusion in the project
- BMPs for stormwater contained in section 5.7 of the Draft EIR

While these commitments are a good starting point, more can and should be done to protect the public investment in the project through use of BMPs. The CAC has identified a number of steps (some of which can be implemented immediately without the need for environmental review) recommended for inclusion in a BMP plan. A-19

The Charlesgate Draft Record of Decision contains a requirement for the proponents to develop a work plan by the end of calendar year 2002 for BMPs in the Muddy River basin. The Final EIR should include the results of this analysis, and should contain a BMP Plan for the Muddy River Watershed that identifies specific BMPs, includes a planning, permitting, and construction schedule, appropriate commitments to implement the plan, and dedicated funding sources. A-20

Several comments have suggested that the proponents implement a Pilot BMP program as soon as possible. Implementation of such a plan could yield valuable data for the basin-wide BMP analysis required by the end of calendar year 2002. I encourage the proponents to pursue this idea further. A-21

Role of the Metropolitan District Commission

Many comments have noted that the Metropolitan District Commission (MDC) has an important role in stormwater management, control of sedimentation, and maintenance in the project area.

However, MDC is not a proponent of the project, and the recommendations in the Draft EIR for maintenance and BMPs on land controlled by MDC are not binding.

I recognize that the MDC should play a role in the future maintenance and management of the project area, and in the implementation of BMPs. The MDC has commented that it is willing to play a greater role than it has played to date in the future development of the Muddy River Project. I commend MDC for its willingness and welcome its participation as a partner in this important project.

It appears that the 1999 MOU concerning maintenance and management issues may need to be amended to include additional commitments by the Town of Brookline and the City of Boston. The amendment of the MOU represents a good opportunity to more actively involve the MDC in the Muddy River Project. I strongly encourage the MDC to enter into a MOU and play a commensurate role in the ongoing development of the Maintenance and Management Plan and the implementation of BMPs in the Muddy River watershed. A-22

Role of the Citizens Advisory Committee

I wish again to thank the dedicated members of the CAC, who devoted much time and effort to ensure the success of the project, and whose efforts have greatly helped to improve the project review and provide valuable advice on what still needs to be done.

The CAC has asked for a clarification of its role now that the project is moving to the Final EIR stage. As laid out in the Certificate that established the Special Review Procedure, I expect that the CAC will continue to play an active role in advising me and the proponents throughout development of the Final EIR, and in preparation of the Annual Updates. I also anticipate that the CAC will provide advice to the proponents as they undertake the required BMP study to be included in the Final EIR. I also anticipate that the CAC will play a role in the independent oversight body that I am requiring as part of the Charlesgate decision. I will consult with the CAC during the process of Final EIR preparation to provide more specific guidance on the role of the CAC in the ongoing review. A-23

Historic Resources

The project area is listed on the State and National Registers of Historic Places as part of the Olmsted Park System, and is a designated City of Boston Landmark. The Massachusetts Historical Commission (MHC) has determined that the project as described in the Draft EIR may have an "adverse effect" on the Olmsted system from the construction of cascade aeration structures and large culverts, and potential demolition of arched culverts. The proponents should consult with MHC on methods of avoiding, minimizing, or mitigating those impacts. The proponents should also consult with MHC regarding the alternatives under consideration for the Carlton Street Footbridge. A-24

The Final EIR should also include more detail on measures that will be taken to protect extant historic and cultural resources within the project area during construction and beyond, including protection of plantings, structures, and other historic landscape features. A-25

Carlton Street Footbridge

In recent months, the future of the Carlton Street Footbridge has become controversial within Brookline, and I have received several comments concerning this element of the Emerald Necklace Master Plan. The Draft EIR notes the current status of the footbridge rehabilitation.

I recognize that the Master Plan is a living document, intended to evolve to meet the changing requirements of proper resource stewardship and the needs of the surrounding communities. Some well-conceived changes to the Master Plan may be appropriate after careful review (e.g., reconsideration of a paved bicycle path on the Boston side of the River). Nonetheless, the decision to include the rehabilitation of the bridge within the Master Plan was made after careful consideration of the historic importance of the bridge, and its role in providing access to the Olmsted Park system as well as a link between the adjoining neighborhoods of Boston and Brookline. In recognition of the historic value of the bridge, MHC has determined that the demolition of the bridge would constitute an "adverse effect" on the State and National Register Olmsted Park System.

After review of the record, including the Master Plan and supporting materials, and the opinion of MHC, I find that the Carlton Street Footbridge is historically significant and is an integral component of the Olmsted Park System, and its eventual rehabilitation and reopening is an established part of the wider Emerald Necklace rehabilitation effort. This Certificate assumes that the Town of Brookline will act in good faith to expeditiously implement the elements of the Master Plan within its control, including the rehabilitation and reopening of the Carlton Street Footbridge. A-26

Any change in the Town's commitment to rehabilitate and reopen the footbridge will require, at a minimum, the filing of a Notice of Project Change (NPC) to the Muddy River Project. Upon review of the NPC, I will make a determination as to what alternatives require consideration, although any analysis would certainly include a requirement to study a no-action alternative and an alternative that involves rehabilitation of the footbridge. As part of the review, I would also make a determination, in consultation with MHC and other appropriate parties, as to how any adverse effects to historic resources might be avoided, minimized, or mitigated. Any analysis would also need to discuss the implication of obtaining future state funding for Master Plan elements in light of any decision to abandon an important element of the Master Plan and demolish an historic resource such as the footbridge. A-27

Back Bay Yard

Unidentified mountain/dirt bike enthusiasts have developed an unpermitted mountain/dirt bike course within an area adjacent to the MBTA tracks and the Boston Parks Department Back Bay Yard. The dirt bike activities have led to substantial earthwork and alteration of vegetation, and the use of the area for these activities could be a locally significant source of sediment. From property records, it is unclear whether the site of the dirt bike course is under the control of the City of Boston or the MBTA. The Final EIR should include a determination of the property owner, and if the City of Boston owns the property, should include appropriate plans to restore the landscape of the area. (If the MBTA is the owner I ask that the proponents work with the MBTA to ensure the rehabilitation of this area.) A-28

Rare Species

The state-threatened Threespine Stickleback (*Gasterosteus aculeatus*) occurs within the project area at Spring Pond, its outlet stream, and a small area within Willow Pond. The Natural Heritage and Endangered Species Program (MNHESP) has determined that the project will not constitute the "take" of the Threespine Stickleback. Therefore, the project will not require a Conservation Permit pursuant to the Massachusetts Endangered Species Act.

Nonetheless, pursuant to the Wetlands Protection Act regulations (310 C.M.R. 10.00), local Conservation Commissions must make a determination as to whether the project meets the performance standards of the WPA, including a determination that the project will have no short- or long-term adverse effects to habitat of rare species (see 310 C.M.R. 10.59). The Final EIR should address the ability of the preferred alternative to meet the WPA performance standards for rare species. MNHESP has identified additional information that will be necessary to make this determination, including:

- Data from previous surveys
- Survey and capture protocols
- Project timing
- Details on habitat enhancement at Willow Pond
- Post-construction monitoring plans
- Buffer zone restoration plans for Spring Pond
- Measures to control sedimentation at Spring Pond and removal of the existing sediment plume
- Plans to reduce nutrient loads to Spring and Willow Ponds

A-29

The Final EIR should contain the requested information at a level of detail appropriate for MEPA review, and of sufficient detail, to determine whether the impacts on rare species would be permittable under the WPA at the local level, or whether the impacts would require the proponent to seek a variance. If a variance proves necessary, the Final EIR should then demonstrate how the project (both in the immediate Spring Pond/Willow Pond area and as a whole) could meet the requirements set forth by DEP (particularly those relating to demonstration of an overriding public interest, infeasibility of alternatives, and development of mitigation) to obtain a variance to the WPA regulations.

A-30

Annual Updates

The Draft EIR includes a description of the information proposed for inclusion in the Annual Updates (AUs). In addition to the information proposed by the proponent, the AUs should include the following:

- Mileposts that clearly measure the attainment of environmental goals and the adherence to environmental performance standards
- Summary and analysis of the reports listed on page 31 of the Executive Summary
- A summary of funds expended on the implementation of the project, including the BMP plan and the Maintenance and Management Plan, disaggregated by category
- Budget and funding sources for the upcoming year
- Summary of monitoring information on current environmental conditions
- Copies of the Army Corps annual inspection report and Charlesgate annual inspection report, and discussion of any actions taken to address issues raised in the reports

A-31

I anticipate that the review of the AU would include ongoing meetings with the CAC and oversight body, and potentially additional public meetings as necessary.

Comments

The Draft EIR has generated a substantial volume of thoughtful and insightful commentary. The Final EIR should contain copies of the comment letters received, and the document should address the issues raised therein. The Final EIR should present additional technical analysis and/or narrative as needed to respond to the comments received. The proponent should circulate the Final EIR to those who commented on the Draft EIR and to any state agencies from which the proponent will seek permits, approvals, or funding.

A-32

Mitigation/Section 61 Findings

The Final EIR should include Proposed Section 61 Findings. The Findings should identify specific mitigation measures and the parties responsible for funding and implementation, as well as a

A-33

detailed implementation schedule. As discussed above, the Proposed Section 61 Findings will need to include more than generic references to maintenance and management responsibilities. The Findings should also incorporate the specific comments on mitigation made by the permitting agencies, in particular by DEP. A-33 CONT.

April 16, 2002
Date

Bob Durand

Comments received (continues on next page):

03/01/02 Natural Heritage and Endangered Species Program
03/07/02 Edward Cutler
03/08/02 Division of Marine Fisheries
03/21/02 Lisa Tucker-Kellogg
04/05/02 Town of Brookline Department of Public Works
04/05/02 Brookline Greenspace Alliance
04/08/02 Northeastern University
04/08/02 Medical Academic and Scientific Community Organization
04/08/02 Friends of the Muddy River
04/08/02 Frances Shedd-Fisher
04/08/02 Arleyn Levee
04/08/02 Fenway Studios, Inc.
04/08/02 Boston Greenspace Alliance
04/08/02 Emerald Necklace Citizens Advisory Committee
04/08/02 City of Boston Environment Department
04/08/02 Jeffrey Ferris
04/08/02 Charles Beveridge
04/08/02 Metropolitan District Commission
04/08/02 Charles River Watershed Association
04/08/02 The Emerald Necklace Conservancy
04/08/02 Precinct One Town Meeting Members, Town of Brookline
04/08/02 Roger Frymire
04/08/02 Department of Environmental Protection NERO
04/08/02 Department of Environmental Management
04/08/02 Town of Brookline Selectmen
04/09/02 Massachusetts Emergency Management Agency
04/09/02 U.S. Department of the Interior, National Park Service
04/09/02 Massachusetts Historical Commission
04/09/02 Town of Brookline Conservation Commission
04/09/02 Friends of the Carlton Street Footbridge

04/09/02 Town of Brookline Preservation Commission
04/09/02 Brookline Village Action Groups
04/09/02 High Street Hill Association
04/10/02 Museum of Fine Arts Boston
04/10/02 The Fenway Alliance
04/11/02 Boston Water and Sewer Commission
04/12/02 YMCA of Greater Boston
04/12/02 Massachusetts Historical Commission

BAD/ASP/asp

B

AP

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

27 February 2002

NHESP File: '98-4172

03-01-02 P92913-MI

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway St., Suite 900
Boston, Massachusetts 02114

03-019919-92913-MI

Project Name:	Phase 1 Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project
Proponent:	Boston Parks and Recreation Department and Brookline Department of Public Works
Location:	Muddy River, Boston and Brookline
Document Reviewed:	DEIR
EOEA File Number:	11865

RECEIVED
MAR 01 2002
MEPA

Attention: MEPA Unit/Arthur Pugsley

Dear Secretary Durand,

The Natural Heritage & Endangered Species Program (NHESP) has reviewed the Draft Environmental Impact Statement for the Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project and would like to offer the following comments regarding potential impacts to state-protected species.

The "Threatened" Threespine Stickleback fish (*Gasterosteus aculeatus*) occurs within Spring Pond, its outlet stream, and a small ponded area within Willow Pond. The NHESP previously identified the "Endangered" Pied-billed Grebe (*Podilymbus podiceps*) within the Leverett Pond area. However, based on site visit information, suitable marsh habitat is absent within Leverett Pond and the lower Muddy River system. Therefore, we do not anticipate that this species will be negatively impacted by the proposed project.

As directed by the Secretary, the proponent consulted the NHESP during the development of the DEIR. A site visit was conducted on 29 November 2000, and we reviewed draft plans. We worked with the Proponent to devise a plan to avoid impacts to the Threespine Stickleback, and to enhance and expand

Natural Heritage & Endangered Species Program
Route 135, Westborough, MA 01581 **Tel:** (508) 792-7270 x 200 • **Fax:** (508) 792-7821
An Agency of the Department of Fisheries, Wildlife & Environmental Law Enforcement
http://www.state.ma.us/dfwele/dfw/nhesp

its habitat. We fully support activities that will provide a net-benefit to this population, since we have concerns about the extirpation of the Spring Pond population from a catastrophic event, or long-term degradation.

The NHESP concurs, in general, with the proponent's proposed plan to avoid the "taking" of any Threespine Stickleback fish pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A), and the plan to protect and enhance habitat pursuant to the Wetlands Protection Act Regulations (310 CMR 10.00). We will provide comments to the proponent during the Wetlands Protection Act process when plan details are provided. The type of information we will need to see included with the Notice of Intent are:

- Data from previous Threespine Stickleback fish surveys conducted by the proponent,
- Survey and capture protocols,
- Project timing,
- Details of the Willow Pond habitat enhancement plan,
- A post-construction monitoring plan,
- A Spring Pond buffer zone restoration plan,
- Measures to correct ongoing sedimentation of Spring Pond and remove the existing sand plume, and
- A plan to reduce current nutrient loads to Spring and Willow Ponds.

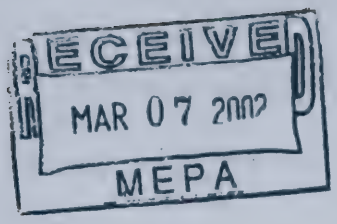
We appreciate the opportunity to comment on this project.

Sincerely,

Patricia Huckery
Endangered Species Project Analyst

cc Boston Parks and Recreation Department
Brookline Department of Public Works
Bruce R. Conklin, CDM
Boston Conservation Commission
Brookline Conservation Commission
Rachel Freed, DEP Northeast Regional Office
file

AP C



March 4, 2002

03-6-02 P03:48 IN

03-069919-92937-MI

Secretary Robert Durand
Executive Office of Environmental Affairs
251 Causeway St.
Boston, MA 02114

Ref: EOEA #11865 -Muddy River Flood Control & Environmental Restoration

Dear Secretary Durand;

This letter is coming from a member of your CAC who has been involved in the development of the DEIR since its inception. But, also a member of the disability community (visually impaired) who has, I must confess, overlooked one very important aspect of this plan that I must bring to your attention:

Accessibility for the mobility impaired.

This is especially important in the section between Park Drive and Route 9 (Riverway Park). As a resident of Brookline I have become involved in the attempt to restore the Carlton Street Footbridge and that has led to the growing awareness of the extremely limited access for our mobility impaired citizens. The entrance from Netherlands Road is one current option but there are real problems at the Park Drive entrance given the slope of the approaching sidewalks and roadways. The Longwood MBTA stop could possibly be an access point but this would require the cooperation of the MBTA and that does not seem to be currently forthcoming.

Given the total cost of this project and the obvious ADA implications I strongly urge you to examine any and all methods for making the park accessible, particularly from Brookline, and develop an access upgrade plan before final approval. The development of this plan would hopefully include the MBTA and the MDC as well as the City and Town given their 'ownership' of relevant real estate.] C-1

Respectfully,

E.B. Cutler

Edward B. Cutler, PhD
14 Monmouth Court
Brookline, MA 02446

Home Phone: 617-738-0107

John Burckardt, Project Manager for Boston & Brookline

D
AP

Commonwealth of Massachusetts

Division of Marine Fisheries

251 Causeway Street • Suite 400
Boston, Massachusetts 02114
(617) 626-1520
fax (617) 626-1509

Paul J. Diodati
Director

March 8, 2002

RECEIVED
MAR 08 2002
MEPA

Bob Durand, Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Arthur Pugsley, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, MA 02114

Re: Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project – Phase 1

Dear Secretary Durand:

The Division of Marine Fisheries (the Division) has reviewed the Draft Environmental Impact Report (EIR) Phase 1 Muddy River Flood control, Water Quality and Habitat Enhancement, and Historic Preservation Project submitted on behalf of the City of Boston and Town of Brookline (the Proponents). The Proponents intend to dredge sections of the Muddy River, remove encroaching vegetation, and commence other activities to restore riverine flow and improve flood control. The Division has determined that the project will not adversely effect diadromous fishery resources, and the stated best management practices are sufficiently protective during construction. Improved fishery habitat may result after completion of the project. The Division reserves the right to amend this finding should project conditions other than those stipulated in the draft EIR take place, and the Division requests timely notification should this occur.

The Division appreciates the opportunity to review and comment on this project. If you have any questions or require additional information please contact Dr. Jack Schwartz at our Gloucester field station (978.282.0308x122).

Sincerely,

Paul J Diodati

Paul J. Diodati
Director

cc: Jack Schwartz, MDMF
Brad Chase, MDMF
Vin Malkoski, MDMF
Phil Brady, MDMF

E

AP

12 Monmouth Court
Brookline, MA 02246-5634
March 14, 2002

RECEIVED
MAR 21 2002
MEPA

Bob Durand
Secretary
Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

Re: Muddy River Project (EOEA Number 11865)

Dear Mr. Durand,

I'm writing in response to the opportunity for public comment about the muddy river restoration project. I'm absolutely thrilled with the progress on this monumental project, especially because of the flood risk to my home.

I'm also concerned about wheelchair access to the parkspace surrounding the muddy river. I am aware of the difficulty of making places accessible, especially after undergoing accessibility construction in my own home.

The parks around the muddy river are especially difficult to navigate because of the mounds and berms around the river.

For example, the Riverway park entrance at the Longwood MBTA stop is not accessible and the steps and berms there are awkward for many people. When there's snow or bad weather, the sudden incline is obscured and easy to trip over. A steep slope in the middle of an otherwise flat surface can be treacherous.

E-1

Sincerely,

Lisa Tucker-Kellogg

F

TOWN OF BROOKLINE
Massachusetts

DEPARTMENT OF PUBLIC WORKS
ENGINEERING & TRANSPORTATION DIVISION

April 2, 2002

A. Thomas DeMaio
Commissioner
Peter M. Ditto, PE
Director

RECEIVED
APR 05 2002
MEPA

Mr. Jay Wickersham
MEPA Director
Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

RE: CARLTON STREET FOOTBRIDGE
MEPA Jurisdiction and Process

Dear Mr. Wickersham:

This May, the Brookline Annual Town Meeting will debate the future direction of the Carlton Street Footbridge. Two separate Warrant Articles, taking fundamentally different approaches to the footbridge, have been filed: 1) To REMOVE the footbridge; or 2) To REHABILITATE the footbridge with full accessibility compliance.

In order to effectively evaluate these two alternatives, the Town needs to understand whether or not the regulations of the Massachusetts Environmental Policy Act (MEPA) would apply in the case of a decision by the Town to move forward with either the REMOVAL or REHABILITATION of the footbridge. And if so, what specifically would be the process that the Town should anticipate in either scenario?

I am in receipt of a letter dated 9/27/01 from you to two Brookline residents, Mr. Cutler and Mr. Mattison, in which an "Advisory Opinion" is solicited of MEPA regarding the proposed demolition of the footbridge and possible MEPA regulatory ramifications. Linking the footbridge to the Phase I Environmental Notification Form (ENF) for the Emerald Necklace Environmental Improvements Master Plan, this letter delineates the process through which the Town would be required to negotiate should removal be pursued.

F-1

The letter states that "environmental review would begin with the filing of a Notice of Project Change . . . and public review of and comment on the proposed demolition." It concludes "that the environmental review would entail a comprehensive analysis of alternatives to demolition and, should demolition be permitted, commitment to implementation of substantial mitigation." While I understand the environmental process and am able to assign related time and cost factors, I would like to request clarification on what is meant by "substantial mitigation," whether by example, definition or dollar sum.

I want to thank you in advance for your timely review of both these footbridge options from the position of the MEPA office. Your response is fundamental to providing Town Meeting Members and the Board of Selectmen with a clear understanding of possible project impacts that will permit a more informed vote. The Selectmen will be taking up this issue at their April 23rd meeting. I'm certain that MEPA understands both the political sensitivity of the footbridge locally and the Town's commitment to act only with knowledge and prudence.

Sincerely,

Peter M. Ditto, PE
Director

333 Washington Street • Brookline, Massachusetts 02445-6863
Telephone: (617) 730-2139 Facsimile: (617) 264-6450
http://www.townofbrooklinemass.com

G

AP

BROOKLINE GREENSPACE ALLIANCE

Advocates for Our Greenspace Heritage

Officers of the Board
President
Paul Perry
Vice President
Public Policy
Publications
Secretary
Executive Director
Conservation
Public Forum
Membership
Land Stewardship
Trails
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Fundraising
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Parks & Open Space
Transportation
Historic Preservation
Legislative
Brookline Village Coalition
Brookline Soccer Club
Brookline Village Alliance
Brookline Youth Baseball
Brookline Garden Club
Brookline Village Alliance
Brookline Action Brookline
Brookline Playground Association
Brookline Neighborhood Association
Brookline Reservoir
Brookline Tennis Club
Brookline Park
Brookline Pond
Brookline Park
Brookline Park
Brookline Park

(6) There should be greater sense of urgency given to issue of flooding. We are currently experiencing drought conditions. It would be no surprise to find this reversed with one or more major rain events. Between now and the completion of Phase 1 the community is extremely vulnerable. Yet, we see no signs of special preparedness, of practice drills in case of major rains, or other indication that there is anything but business as usual on this matter. 6-6

(7) In addition to funding for the actual execution of the Phase 1 plan, there should be identifiable budget items for maintenance of the restored waterway in the budgets of Boston, Brookline, MHD and the MDC, whose parkways are as offending as MHD's. Budgets lend visibility and accountability to the future maintenance question. 6-7

(8) When the Citizen's Advisory Committee (CAC) related to this DEIR was formed, it was anticipated to disband at its completion. Now we see a role for a continuing CAC extending to the end of the project and exercising a citizen's oversight to the governmental and professional that such a project necessarily will have. The CAC for this future time should have seats that specifically represent interests. The current CAC is composed of individuals and they are identified by affiliation but the seat is theirs, not the organization they represent. We call for a continuing CAC, with organizational seats, and we ask that the Brookline GreenSpace Alliance have one of those longer-term seats. 6-8

(9) The small islands on the west shore in Leverett Pond are in danger of collapsing unless their banks are restored in the course of the project. 6-9

Thank you for this opportunity to comment. We hope our suggestions are found useful and to the point.

- Fred Perry

Fred Perry 3 April 2002

- President

AP H

Northeastern
UNIVERSITY

Office of the President
110 Churchill Hall
Northeastern University
on, Massachusetts 02115-5000

Phone: 617.373.2101
Facsimile: 617.373.5015

FAXED
4/5/02

RECEIVED
APR 10 2002
EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS

RECEIVED
APR 10 2002
MEPA

April 8, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

RE: Muddy River Restoration Project
EOEA #11865

Dear Secretary Durand:

I am writing on behalf of Northeastern University in support of the Muddy River Restoration Project.

In 1996 and 1998, Northeastern University experienced millions of dollars in damage caused by extensive flooding. The damage caused by these storms halted business as usual and we were even forced to cancel classes at Northeastern University.

The Muddy River Restoration Project will provide the critically needed flood control that will avoid a repeat of these destructive events. This project is also essential to protect the MBTA Green Line, hospitals, museums, universities, and colleges, businesses and residents alike in the Fenway area.

The Draft Environmental Impact Report is a thorough and encompassing document that provides the documentation necessary to demonstrate that the project will achieve not only its objective of flood control, but will also bring significant environmental improvements to both the water quality and the surrounding habitat. Furthermore, the project will be a major step in rehabilitating the historic landscape of the Emerald Necklace, which is a centerpiece of Northeastern University and the Fenway neighborhood.

To avoid the future possibility of damage caused by flooding, it is essential that this project be expedited as quickly as possible. Dredging of Charlesgate should be a priority for this year. As soon as funding can be secured, the remainder of the project should be implemented and executed. Thank you for your consideration on this matter.

Sincerely,

Richard M. Freeland
President

A0-

I

M A S C O

Medical Academic and Scientific Community Organization, Inc.

RECEIVED

APR 16 2002

MEPA

FAXED 4/8/02

Secretary Robert Durand
Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

April 8, 2002

02-04-12 P04:01 IN

RE: Support of the Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project. Review comments on the December 2001 DEIR.

Dear Secretary Durand,

We are writing, on behalf of MASCO's 19 member institutions in the Longwood Medical and Academic Area (LMA), in support of the Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project.

MASCO provides services to institutions in the Longwood Medical and Academic Area (LMA) of Boston, including traffic, access and open space improvements, as well as construction coordination for the LMA. As abutters to the Muddy River and Emerald Necklace, we have been a long-standing advocate for, as well as agents for, park and river improvements. The park is an important "gateway" to the LMA. It also provides our patients, visitors, doctors, faculty, staff and students a place to exercise, commute and reflect. In 1996 and again in 1998 our institutions suffered millions of dollars in damages due to the flooding of the Muddy River. It is critical to us that the flooding situation be mitigated as soon as possible. "No action" is not an option to us.

There are a number of issues in the DEIR that we would like to comment on, and areas where we request greater clarity in the FEIR document, prior to its approval. Our basic areas of concern are: traffic (land closures, road closures, ripple effects on other roadways), the schedule (phasing, timing and sequencing), staging areas, funding, management, emergency flooding response procedures, and best management practices. These questions are discussed below; where we have specific technical or grammatical questions they are submitted as an attachment.

As the entity that manages construction coordination among projects in the LMA we would like to review the construction bid documents before they are disseminated. We believe that we may save both the contractor(s) and the institutions from potential conflict, as well as saving time, money and energy that would otherwise be spent negotiating new outcomes. We thank you for this opportunity to comment.

Sincerely,

Andrew T. Lenton

Andrew Lenton
Transportation Planner

Janice Henderson
Planner

375 Longwood Avenue, Boston, Massachusetts 02215-5328 617 632-2310 Fax: 617 632-2759

MEMBER INSTITUTIONS:
Beth Israel Deaconess Medical Center • Brigham and Women's Hospital • Children's Hospital • Dana-Farber Cancer Institute • Emmanuel College • Harvard University (Medical School, School of Dental Medicine, School of Public Health) • Joslin Diabetes Center • • Judge Baker Children's Center • Massachusetts College of Art • Massachusetts College of Pharmacy and Health Sciences •

Traffic

- Truck Routes - Consideration should be given to alternative truck access routes to and from the staging areas in the Fenway section, that would be less circuitous, utilize less of the Sears Rotary and the MDC Parkway system, and avoid the already congested Louis Prang/Evans Way/Fenway and Louis Prang/Huntington Avenue intersections. A preferable scheme might be to have trucks approach all three Fenway staging areas via Massachusetts Avenue, westbound Boylston Street, westbound Ipswich Street, eastbound Boylston Street (briefly) and Park Drive; then leave the Lagoon and Fens Bridge staging areas by way of outbound Park Drive, take a right onto inbound Boylston Street, another right onto outbound Fenway, and Westland Street. I-1

- Trip Generation - The trip generation estimate for construction-related traffic is premised on the assumption that all construction activities will occur simultaneously, which is definitely not going to be the case. The report states that dredging work (two round-trips per hour) must be completed before culvert construction (only one round-trip per hour), which, in turn, must be completed before day lighting (six-round trips per hour) can begin. Presumably, the all-at-once assumption was made in order to present a conservative, "worst case" scenario, but it would be preferable to show what the traffic impacts are most likely to be. I-2

- Culvert Construction Traffic Plans - The report contains inconsistencies regarding traffic plans during culvert construction at the Riverway/Park Drive (Fenway). On pages 5-21 and 5-25, it states that, by shifting lanes and using a segmented open cut approach, the full number of lanes can be kept open during construction, but on pages 5-26, 5-30, and 6-41, it says that single lane closures are possible, and on page 7-21 it says that single lane closures will be required. If it is possible to keep all lanes open, then no consideration should be given to any lane closures, even if the study shows it to be feasible. Full access at this important location linking downtown Boston and the LMA must be maintained at all times. I-3

  There is a similar inconsistency regarding culvert construction at Brookline Avenue: On pages 5-29 and 6-41, it says that "even a one-lane closure" would significantly exacerbate congestion during the daytime, but on page 5-30 it says that "anything more than a one-lane closure" would have that effect, implying that a one lane closure would be possible. Our strongly held position is that any daytime lane closure at all should be ruled out. We can support the recommended concept of keeping the existing lane configuration intact during the day, using bridging slabs, and doing the work in the roadway at night, only if the noise and odor impacts to Fenway and Riverway residents, including Emmanuel and Simmons College dormitory residents, are satisfactorily mitigated. If mitigation is not possible, the only acceptable alternative is daytime-only construction using lane shifts and segmented open cut construction, even though that would extend the construction six months. I-4

- Jughandle: On page 5-23, reference is made to ongoing discussions taking place regarding possible redesign of the Sears Rotary, which could require changes in the design of this project if those discussions lead to the elimination of the "jughandle" east of Brookline Avenue. The Sears Rotary alternatives calling for eliminating the jughandle also require that a new "T" intersection be created at the Riverway/Park Drive intersection in order to serve the traffic heading to Cambridge via Audubon Circle, which currently uses the jughandle. No agencies or organizations have made any commitment

to implementation of any of those alternatives. In any case, no consideration should be given to elimination of the jughandle in the absence of commitments to the associated Riverway/Park Drive intersection improvements.

- Netherlands Road Closure: The impacts that closing Netherlands Road will have on the adjacent Riverway/Brookline Avenue and Brookline/Francis intersection(s) are unacceptable, and the proposed mitigation measures appear to be insufficient. The report states that the major impact would be on left turns from Brookline Avenue in both directions in the a.m. and p.m. peak hours, yet one of the mitigation measures would benefit only the Riverway northbound, which is completely unaffected by the closure of Netherlands Road. Presumably, the concept is that by increasing northbound through/right capacity, the Riverway will require less green time, which would allow some extra time for Brookline Avenue left turn phases. More information needs to be provided as to how and whether this mitigation scheme would enable the intersection to handle an additional 495 vehicles in the morning peak, and 435 in the evening peak. Unfortunately, the base volumes for some of the traffic movements seem to have increased in the mean time, based on a comparison of the counts shown in the report with counts obtained by MASCO that were taken during the first week of April 2002. The most significant increases were Brookline Avenue through/right movements during both peak hours. Left turns remained about the same, probably because they were already at capacity. These increases further diminish the likelihood that traffic displaced by closing Netherlands Road could be accommodated at Brookline Avenue and the Riverway. Netherlands Road provides an important traffic relief valve for the area. I-6

Schedule – Phasing, timing and sequencing

- In Section 5 dredging will take place first, then the culvert work, then the day lighting, followed by the planting. Some of this work could take place simultaneously, and probably should (i.e. Sears culvert work and dredging down stream). The phasing in the DEIR is very basic: there is the Charlesgate work followed by Phase II (which includes everything else). In some areas we know that the dredging work will take 12-14 months, or the day lighting 18-24 months, but without a clear sequencing calendar it is difficult to ascertain the full impact to the MASCO member institutions. The contractor will define the sequencing. We request that there be more clarity in the FEIR related to sequencing and the estimated amount of time that the Fens, Sears Rotary, and Netherlands Road staging areas will be occupied by construction. I-7

- MASCO's construction coordinator is notified regarding major institutional and city events and works with contractors to mitigate impacts on the institutions, and the neighborhoods, and to notify area-wide employees of commuting changes. He also works with construction managers to alert them of their anticipated impacts on one another so that alternative plans may be arranged. We strongly encourage the selected contractor to work closely with the MASCO construction coordinator, beyond the Public Meetings (p. 7-21). We appreciate that the Resident Engineer will coordinate regularly with MASCO as stated on p.7-22. I-8

Staging Areas – Netherlands Road, other options

- Due to the serious traffic issues related to the Netherlands Road staging area, cited above, we share the Brookline Parks and Recreation Departments (in whose jurisdiction it lies) concerns about this site. Alternatives should be sought for staging in the FEIR. Alternatives might include: Brookline Water Department land, park land adjacent to I-9

Netherlands Road, Boston Maintenance land, a parking lane on the Brookline Avenue bridge, closure of Parkway Road (take one lane of Parkway Road, leaving a travel lane and access to the apartments) while making Netherlands two-way, or use of other accessible park land like the Sears Rotary. Using the Sears rotary as a staging site does not change its use from parkland into some kind of other use (per note on page 2-45 of Volume 1). I-9 CONT.

Funding

- The funding for this project has not yet been committed. Our concern is that this appears to be an "all or nothing" project. If significant funding is not forthcoming, then this project needs to be broken down into phasable pieces that may be funded over time, in the FEIR. I-10

- In accord with the CAC comments, resolutions should be adopted by the executive and legislative branches to fund the additional costs ($49 million) required to adequately maintain all of the work included in the Muddy River Project. Funding for the MDC (or substitute owner) should be included in this cost estimate to cover maintenance costs in that jurisdiction. I-11

Management

- The DEIR comments that the management and resource structure that is finally selected will evolve over time, that successful park plans involve the willingness of leadership to change over time and incorporate new sources of funding. The FEIR will include recommended short- and long-term management structures. One desirable long-term outcome is that there be at least one person or entity that can see the "whole picture," to ensure continuity, improve efficiency and reduce lapses in functions and redundancy in functions that may reemerge if communication is not diligent. The FEIR should also include some resolution on the MDC's role in maintaining the parkway and funding to do so, should they continue to be the entity to oversee this portion of the work. I-12 I-13

Emergency Action Plan

- On page 8-35 the Interim Interagency Emergency Action Plan for flooding in the Muddy River is described, including the MDC, the City of Boston, the Town of Brookline and the MBTA. This description of the plan does not indicate communication between these entities, only triggers to dispatch personnel based on the level of rainfall. It would seem that communication between these agencies and the Charles River Dam would be essential. The water level in the Charles River significantly impacts the water level in the Muddy River. Could the FEIR explain why the Charles River Dam is not included in the Emergency Action Plan, or include them, and explain the communications systems between these entities? I-14

Best Maintenance Practices

- Street Sweeping – on page 5-74 it is recommended that the colleges allow residents to park in designated lots during the time scheduled for street sweeping in their neighborhood. MASCO operates several parking lots in the area and is willing to discuss ways to manage the implementation of this concept. I-15

- Catch Basin Cleaning – throughout the report there are references to the Boston Catch Basin Maintenance Program and improved cleaning program, which will be a terrific improvement. Our concern lies with the MDC catch basins. In this report there is acknowledgement that the MDC is currently unable to maintain the catch basins due to I-16

funding. The MDC catch basins adjacent to the LMA, in the Riverway in particular are full, causing major puddling, effectively eliminating travel lanes, splashing pedestrians, and when it is freezing causing cracking of the asphalt and the creation of large potholes. This puddling also overflows into the parkland, causing erosion of the soils. MASCO, with authorization from several jurisdictions, repaved the Longwood Avenue Bridge in 2001. It is critical that some department or agency take responsibility to see that these catch basins are cleaned on a regular basis, and are adequately funded to do so, to protect both public and private investments. I-16 CONT.

Attachment – Technical or Grammatical comments

- Clarification needed: According to Volume 1, Figure 6-15 it appears that the anticipated river, in flood conditions, after the dredging, would be lowered in the Riverway by approximately 4-5 feet from the '96 flood conditions. Given that some of the MASCO institutions had 10+ feet of water in their buildings does this mean that after the dredging we will still experience flooding in buildings that have not been waterproofed? I-17

- It is not clear which Brookline Ave. water main crossing was selected in Appendix I, section 3.1.2, as a steel encasement option is not described in 3.2.1 (pg. 3-4). Are all pipes that are in very poor condition abandoned or repaired with this alternative? In particular, the 7 ft x 9 ft existing drain was referenced on 2-27 of Volume 1 as a drain "which risks collapse because of age." If it were to collapse would it impact the roadway above? I-18

- In Volume 1, page 2-51, it is stated "Odor and noise impacts may affect local businesses nearby in Brookline." We are unaware of any businesses nearby in Brookline but there are a number of residences in this location. Odors may affect hospitals, colleges and residences in the LMA. I-19

- Volume 1, page 4-80. We have noted other wildlife in the Riverway including: red-tailed hawks, a great blue heron which sits on the island adjacent to the Chapel Bridge, peregrine falcons, and up to 20 hooded mergansers at one time. I-20

- Volume 1, page 5-17. "A single 24-inch sewer passes under the day lighted section (of the Sears lot) that will have to be reconstructed as a part of the proposed channel section." To where will it be relocated? I-21

- There are a couple of references to the "Medical District" and the "Longwood Medical Area". The official name is the "Longwood Medical and Academic Area (LMA)" (because it includes the Colleges of the Fenway). Please use the correct terminology and geography (the LMA abuts what is called the Back Bay Fens in this report). I-22

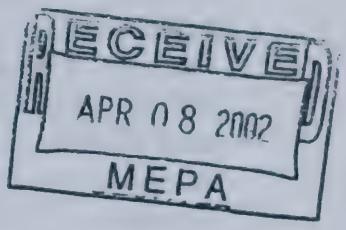
- Volume 5, Appendix F, Figures F3-2 through F3-6 it is difficult to determine the difference in the shadings between sediment going to an unlined landfill in-state, out-of-state or RCRA. I-23

APJ

22 Bowker Street
Brookline, MA 02445
(617)734-2741

FRIENDS of the MUDDY RIVER
BROOKLINE-BOSTON

107 Queensberry Street #2
Boston, MA 02215



April 8, 2002

Bob Durand, Secretary
Executive Office of Environmental Affairs
MEPA Office, EOEA 11865
Arthur Pugsley, MEPA analyst
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

I am happy to be a signatory to the Emerald Necklace Citizens Advisory Committee letter supporting Phase I of the Muddy River improvement. I also applaud the letter of the Brookline Conservation Commission dealing with runoff and the comments of the Emerald Necklace Conservancy on structure. I offer a few additional comments:

The Friends of the Muddy River agree with the emphasis on source control, stormwater management, and BMP's. If we are to make this large investment, we are obligated to extend its useful life. The Friends of the Muddy River have had a Massachusetts Environmental Trust grant to do storm drain stenciling throughout the watershed of the river. We have had stenciling events with City Year, the Massachusetts Community Water Watch, Boston Water & Sewer and the Brookline Conservation Commission. A lot of people now know that you should not dump waste in catch basins. The practice of dumping is growing among cleaning companies. Governmental authorities in Brookline and Boston should declare this practice unacceptable and fine those who dump. Changing public attitudes is part of the necessary public education. J-1

The treatment of historic resources is very uneven in this document. Section 4 Existing Conditions has a truncated and inaccurate list of birds on the Riverway. J-2
Allegations about the health of the trees appear to have been dropped. But the inventory of trees which was not taken up by the CAC, seriously suggests that some Heritage trees on the Riverway should be "harvested" despite the consultants assurances that heritage trees are to be everywhere protected. Elsewhere it is suggested that 51,000 shrubs should be planted on the Riverway! Unless there is special provision for oversight such plantings would not survive. Planning for the J-3 J-4

Riverway should take account of the context of the park now--not 100 years ago when it was more rural. Hopefully the treatment of historic resources will be upgraded. The tree inventory should be revised.]J-5

Water quality issues have not received as much attention as other aspects. Many of us believe that oil and grease pollution is entering the river from the so-called "industrial island" at Route 9. Unfortunately Camp Dresser McKee did not include testing for oil and grease in the water tests reported in Appendix I. This is hard to understand in view of the long history of oil pollution of Willow Pond from the Brookline Town Garage and its involvement with the DEP regulatory people. The necessary testing should be done soon.]J-6

For the record we wrote to you last November at the suggestion of Laura Rome, objecting to a change in the Master Plan, 2001 edition. We objected to the provision for paving over the present stone dust pedestrian path on the Boston side of the Riverway. We have been advised by John Burckardt that this path will not be part of the Phase I work and we should also take up the matter with Margaret Dyson of the Boston Park Department. Attached is a copy of our November 2, 2001 letter. → NOT ATTACHED

The Friends of the Muddy River look forward with enthusiasm to the commencement of the work at Charlesgate.

Sincerely,

Isabella M. Callanan

Isabella M. Callanan
President
Friends of the Muddy River

Enc.: letter 11/2/01

AP K

FRANCES SHEDD-FISHER
149 WALNUT STREET
BROOKLINE, MASSACHUSETTS 02445
(617) 566-1237

April 5, 2002

RECEIVED
APR 8 -- 2002
MEPA

Robert Durand,
Secretary of Environmental Affairs
Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

Dear Secretary Durand:

Re: Emerald Necklace DEIR

As a long-time advocate for the restoration of the Emerald Necklace, I am particularly interested in the success of the Muddy River Project and the successful and timely implementation of all aspects of the Emerald Necklace Master Plans. Thank you for your leadership in this historic process and for the opportunity to share my concerns and hopes for the initiative that is about to be undertaken.

While I am not a member of the Citizens Advisory Committee for the Environmental Master Plan, I have been a close observer of the process from its inception. In the late 1980's and early 1990's I chaired the Olmsted/Riverway Restoration Project Advisory Committee for the Town of Brookline – the citizens' committee that reviewed and commented on the Emerald Necklace Master Plan, conducted public hearings and secured approval of the plan, as amended by our committee, by the Board of Selectmen and relevant agencies in Brookline. I am currently Co-Chair of the Olmsted Park Design Review Committee for the Town of Brookline, overseeing the implementation of the Master Plan in Brookline's portion of Olmsted Park. My long experience in open space advocacy and public process, for example as a founding and current Board Member and past President of the Brookline GreenSpace Alliance, informs my view of the recommendations contained within the Emerald Necklace DEIR, as well as the challenges the project will face.

While I am generally pleased with the work your agency, the professional planners and the Citizens' Committee have done on the Environmental Master Plan, I have concerns that a demonstrated lack of commitment by the municipalities may ultimately derail the project or leave unanswered questions for the future where the efficacy of the investment of restoration tax dollars is concerned. My community of Brookline is fortunate that the anticipated capital contribution to be borne by local taxpayers for our part of the project

is a relatively small $3 million. This anticipates and presumes the Town's continued commitment to protect the aggregate investment through diligent maintenance of banks and waterways in perpetuity. It seems a small price to pay for the restoration and preservation of an Olmsted masterpiece, particularly after years of less than benign neglect, neglect that led ultimately to the extensive, and costly, flood damage in 1996 and 1998 – a small price for the privilege of being stewards of a heritage park which contributes so much to the quality of life of our citizens. The value of this cultural icon cannot be overstated – this great symbol of democratic ideals and the enduring power of Nature.

All the same, my community has sat passively by, presumably assured that Federal and State funding will continue to be forthcoming to solve the engineering and aesthetic problems the park and its constituents face -- or, alternatively, convinced the Federal and State governments will not, in fact, move ahead to fulfill their obligation. The forward-looking communities of Boston and, particularly, Brookline have still, I fear, a wide streak of Yankee conservatism (apparent to insiders) which reveals itself in false frugalities – a dollar not spent is a dollar saved, particularly when general belt-tightening is anticipated in order to meet essential needs and, of course, when the often less parsimonious Federal and State coffers may be accessed. I believe the solution may be for the objective actor – your agency, to make stringent legal requirements where the municipalities, and possibly, if legally feasible or negotiable, the affected educational and cultural institutions, are concerned. The beneficiaries should be required to commit to the capital component of the improvement project and, separately, to commit for the long-term to a standard of maintenance that assures the protection of the investment and the cultural asset the investment is meant to secure. K-1

I stand ready to assist in any way I can to assure the success of the project. Thank you for your vision and care and continued stewardship.

Sincerely,

Frances Shedd-Fisher

Frances Shedd-Fisher

ARLEYN LEVEE

landscape consultant

APL

April 5, 2002

RECEIVED

APR 8 – 2002

MEPA

Secretary Robert Durand
Executive Office of Environmental Affairs
Attention: MEPA Office
Arthur Pugsley, EOEA #11865
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

As you well know, the Emerald Necklace Citizens Advisory Committee (CAC), of which I am a member, has been involved in a long, complex and yet most educative process to develop guidelines and goals by which the landmark Emerald Necklace system of parks and parkways, linked around its linear waster resource, can be appropriately rehabilitated and protected. While I agree with my colleagues on the CAC in most instances concerning the comment letter on the DEIR which the CAC is submitting, I feel that there are several points which need further consideration, beyond those which the group was willing to agree upon.

As a landscape historian, specializing on the work of the Olmsted firm, I have had the opportunity to study the history and development, review programs and actively consult, in conjunction with rehabilitation/preservation projects on historic designed landscapes across the country. From its inception, I have been greatly involved as advocate and professional in national, state-wide and local movements to develop public and governmental understanding about our nation's patrimony of historic designed public spaces—their fragility and the special requirements needed for their protection, and their inestimable value-- financial, social, environmental, aesthetic-- which they bring to our cities and citizenry. It is, therefore, from this national and local perspective that I offer the following comments on the DEIR.

While I am extremely aware that the main thrust of the scope of the April 1999 Certificate concerning this current effort and its funding is flood control with its various corollary environmental mitigations, I have been distressed from the beginning that the historic preservation concerns, which are also a major component have been relegated to the last and often-overlooked position in the roster of goals. **It is critical to keep in the forefront of all considerations that this entire project concerns a historic resource**—that the river with all its meandering curves was a man-made resource, designed to give artistic focus and enhancement to the linear parkspaces which Olmsted so creatively shaped to enhance Boston and Brookline.

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Were it not for someone with the artistic and environmental vision of Olmsted, the bogs and swamps of the Muddy River might have been culvertized and forever removed from view as so many other water elements were in this late 19th century period. Instead, with great aesthetic foresight and ground-breaking engineering skill, he manipulated the river into an art-form set within wide and narrow swaths of greensward and wooded slopes made accessible to the public by winding paths and parkways. His conception planned for the possible flooding of this river which he had retained for public enjoyment, providing ample banks and meadows to act as flood plain. Though this was altered when the nature of the water system changed with the installation of the dam, the safeguards were still functional.

It is only after the century of ever-impoverished park maintenance which has failed to properly care for this resource with its calculated built-in flooding protection that we are now faced with this massive project. This lack of suitable care has not only imperiled the water system, negatively impacting the surrounding communities with flooding and pollution, but has robbed the park resource, and thus the public, of the benefits of much of its vegetated beauty. Inappropriate and poorly regulated uses, loss of trees, shrubs, etc., inattention to grading problems among other issues, have contributed to areas of severe erosion which have jeopardized the river and the parks. This fact, therefore, heightens the importance of creative planning within this current proposal for long-range and system-wide maintenance goals to protect the considerable public investment which is now required to undo a century of misinformation, benign and intended neglect and inappropriate practices and inadequate funding.

Other cities across the country are faced with similar debilitating situations and are taking various approaches toward remediation. The Emerald Necklace parks, however, are unique. They have represented from their beginning an innovative, complex, multi-disciplinary and multi-jurisdictional design solution by Olmsted which should now be worthy of national landmark status. Moreover, the process by which this rehabilitation program has been developed should also serve as a model for the nation. It is critical, therefore, that we do what we can to ensure a considerable rate of success in this extraordinary endeavor. Drawing upon the experiences from other cities which have funded historic park master planning and embarked upon rehabilitation work --- New York City and Brooklyn, Louisville, KY, Seattle, WA, Chicago, IL., among others--- we can learn how vital to the success of these projects were adequate multi-source funding, intensive staff training, informed professional oversight and active community involvement, and how imperative it has been to these other city programs to build these elements in from the very beginning of their rehabilitative work to protect public and private investments.

Therefore, I urge that in the review of the DEIR several components be given detailed consideration:

1. That the **entire resource** be considered **foremost** according to the appropriate historic preservation standards for protection, rehabilitation and treatment (based on the Secretary of Interior Guidelines) therefore ensuring that full mitigation and/or planning measures be taken to ensure returning **all necessary** impacted parts of this resource to an appropriate rehabilitated state. **This entails regarding all the proposed work as an inextricably interrelated system, wherein the parts effect the whole, and the rehabilitation measures must be considered in terms of future stewardship.** L-1

2. That strong commitments are in place to ensure that with the approvals of the preliminary Charlesgate project , the work on the rest of the system will *a fortiori* follow to the full extent necessary to rehabilitate and protect the entire Emerald Necklace. L-2

3. That the best management practices recommended by the CAC have an ensured long-range, legally binding and enforceable commitment from Boston, Brookline and the MDC as well as the state, to fund continuing staff training and field supervision, appropriate technical reviews and evaluations, necessary equipment and to develop innovative patterns of stewardship with community involvement L-3

The commitment of EOEA under your leadership to education about and protection and augmentation of the Commonwealth's environmental and historic resources has been exemplary. You have been willing to actively pursue an often controversial course to ensure that the natural and designed patrimony of Massachusetts will be preserved for succeeding generations to understand and enjoy, and in so doing have established programs and projects, such as this Emerald Necklace Environmental Improvements Master Plan, which serve as models for the nation.

We look to you to maintain your tradition of enlightened and progressive stewardship regarding the Emerald Necklace park system to ensure that the project before you for review receives the necessary modifications required to make it an effective and visionary planning tool. This nationally significant historic landscape legacy requires no less.

Very truly yours,

Arleyn A. Levee

AP M

FENWAY STUDIOS, INC
National Historic Landmark
30 Ipswich Street, Boston, MA 02115

April 8, 2002

Bob Durand
Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Mr. Arthur Pugsley, IV
EOEA No. 11865
251 Causeway Street
Suite 900
Boston, MA 02114

RECEIVED
APR 8 2002
MEPA

RE: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation, EOEA No. 11865

Dear Secretary Durand:

At the request of the President of the Board of Directors, I am writing on behalf of the forty-six (46) members of Fenway Studios, Inc., to clearly state our wholehearted support for the Emerald Necklace Environmental Improvements and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project ("the Project"). As a National Historic Landmark ("NHL"; 1998) adjacent to the Project, we support the rehabilitation of the entire Emerald Necklace Park System and its contributing features, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties. We believe that the Draft Environmental Impact Report ("DEIR") meets the requirements of the Secretary's Certificates on the Environmental Notification Form ("ENF").

We would like to sincerely thank the City of Boston and the Town of Brookline (the "Proponents") for proposing this Project and for preparing the DEIR. We agree with their method of analysis and selection of preferred Project alternatives as described in the DEIR and concur that the mitigation outlined will successfully minimize negative environmental impacts – as long as they are properly implemented.

However, we are concerned and confused as to why the Metropolitan District Commission ("MDC") is not a Project Proponent. We do not understand this omission, as they manage the parkways abutting much of the Emerald Necklace, as well as owning that part of the park crossed or bounded by the Boston Extension of the Massachusetts Turnpike, the Charles River and the city streets of Charlesgate East and Charlesgate West. We seek your assistance in requesting that secured funding be provided by the MDC for the Emerald Necklace and Muddy River Projects within its jurisdiction.

M-1

M-2

We believe it is critical for the Charlesgate portion of the Project to proceed immediately, to insure that the flooding that damages our, and our neighbor's properties, is corrected as soon as possible. We urge you to allow the Charlesgate dredging to proceed in advance of the rest of the Project. Additionally, we fully support the Project in its entirety and expect the Proponents to complete this Phase 1 Project with the ultimate aim of completing the entire rehabilitation outlined in the Emerald Necklace Master Plan ("the Master Plan").

We believe it is obvious that the poor conditions of the park system are the result of deferred maintenance brought about by many years of municipal budget constraints. We are disappointed that the Proponents could not have managed and protected this invaluable resource in a more appropriate way. We also recognize that the City of Boston and the Town of Brookline are parties to a Memorandum of Understanding ("MOU") with your office. Accordingly, these municipalities must work together to submit a maintenance and management plan which will include their respective shares of future maintenance and management costs. We would like more specific information in the FEIR on how the Proponents will meet these obligations. If needed and appropriate, we would request that the MDC become party to, or enter into an MOU of substantive similarity to that of the Proponents, for their proportional share of the resource. M-3

The differing levels of stewardship seen across the multiple jurisdictions evidence the need for an overarching management structure for the entire park system. There is little, if any, coordination evident to us at this time. The Proponents have described five possible management structures in the DEIR. While acknowledging the tremendous progress toward cooperation this Project represents, the alternative listed as "status quo" should be recognized as unsatisfactory. One of the additionally listed alternatives, or some hitherto undefined alternative, should be identified and fully developed in the FEIR. We would hope that the Proponents could work with the newly formed Emerald Necklace Conservancy ("ENC") in coordinating management and maintenance planning (and funding), where applicable. M-4

We firmly believe that a higher quality of maintenance activity is needed now, as well as mandated to insure the success of this Project. The Maintenance Plan included as Appendix J to the DEIR provides information on how to reach more acceptable standards of maintenance. These higher maintenance standards should be consistently applied across all jurisdictions. We hope the Secretary will require the Proponents to provide details of a maintenance plan and the requisite resources, financial or otherwise, as a part of the FEIR. M-5

The DEIR emphasizes that the effective implementation of Best Management Practices ("BMPs") are important tools in maximizing the useful life of this substantial capital investment. It is imperative that the Proponents, the MDC, and other property owners abutting the park system, as well as those in other municipalities within the watershed, fund and carry out any recommended BMPs. M-6

We applaud the Proponents for past, as well as ongoing BMP implementation such as the elimination of illegal sewage connections and more regular street sweeping in the Fenway area. However, to be successful, an enforced car-towing program must accompany any street sweeping initiatives. Additionally, resetting and repair or curbs throughout the system must be instituted to stop sediments from reaching the river: this is a particular problem with respect to the MDC. Furthermore, to the extent that these BMPs can be implemented now, we believe the Proponents and others should be required to do so. M-7

As an NHL, we feel strongly that the City of Boston should remove the "jug handle" adjacent to the Sears Rotary. The lengthy (ca. thirty-year) process needed to return Emerald Necklace parkland originally taken by the Sears & Roebuck Co., for a parking lot should not be repeated here. Daylighting of this area should be mandated and coordinated as part of this Project, both to afford substantial cost savings in culvert work and to continue the historic shoreline alignments for this important National Historic Site ("NHS") on both sides of Brookline Avenue. M-8

We also believe that this Project should not be modified to change the character of the rehabilitation as described in the DEIR and Master Plan, and as supported by the Citizens Advisory Committee ("CAC") and the public-at-large. For example, culverts should be arched, historic headwalls restored and the channel should follow the historic alignment: not to be altered for engineering efficiencies or cost savings. M-9

If the Secretary so approves early action for Charlesgate, we respectfully request that an open public process for the rehabilitation of the Charlesgate parks be convened. We believe that a structured design forum for Charlesgate provides an excellent opportunity for successful redesign and adaptive reuse of these now neglected and underutilized parks. In-kind replacement of the existing features is unacceptable and ultimately detrimental to the successful support and reintegration of these park spaces into the overall Emerald Necklace constituent user base. We understand that there is a groundswell of support for both public participation and private funding of such efforts in the Back Bay and Fenway/Kenmore neighborhoods of Boston. M-10

Finally, as there is no safe and suitable connection for pedestrians, bicyclists and other park users between the Charles River park system and the Emerald Necklace park system at this time, we would hope that this Project and any near term redesign might help address this unwarranted gap in infrastructure. Recently, your office has directed Boston University to look at the Charlesgate/Charles River confluence for relocation of their intended boathouse site. We appeal to your office for help in coordinating with the Proponents, the above-mentioned public process for redesign, and Boston University et al., to create just such a connection. M-11

In conclusion, we enthusiastically support the Project and want it to proceed in its entirety and without segmentation. We appreciate the Proponents' addressing the many

years of inattentiveness to the needs of the Emerald Necklace through the advancement of this Project, specifically the Muddy River waterparks from the Charles River to Wards Pond. We ask that you find the DEIR adequate so as to allow the dredging in Charlesgate to proceed without further MEPA review. We look forward to the successful rehabilitation of this National Historic Site, and welcome any and all efforts to prevent the disastrous effects of flooding and indifferent stewardship from occurring again in the future.

Respectfully submitted,

George Hagerty
Fenway Studios
For Deborah Kravitz
President
Fenway Studios, Inc.

By Hand

AP N

BOSTON GREENSPACE ALLIANCE

RECEIVE
APR 11 2002
MEPA

Committee
President
n, Vice President
Treasurer
; Clerk
at large
Iverton Bussell, at large

Directors
munity Development Corp.
ny Liu
y of Landscape Architects
Copley
al Areas Fund
Johnson
are Health Center
ne Foley
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Overton Bussell

April 8, 2002

02-04-11 P03:06 IN

Robert Durand, Secretary
Executive Office of environmental Affairs
Attention: MEPA Office
Arthur Pugsley, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, MA 02114

FAXED 4/8/02

Re: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, EOEA No. 11865

Dear Secretary Durand,

On behalf of the Boston GreenSpace Alliance, a citywide open space advocacy organization dedicated to the promotion, protection, creation, care and use of parks and open space for all, I am pleased to offer the following comments on the Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project Draft Environmental Impact Report (EOEA DEIR # 11865).

The Alliance has long been active in promoting continued restoration, enhanced management and consistent maintenance for the Emerald Necklace Park System and was instrumental in the creation of the Emerald Necklace Conservancy to promote those objectives. Comprising 1,000 acres of the city's total public park system, the standard to which the Emerald Necklace is managed and maintained will set the tone for attitudes towards other parks and open spaces in the city. Therefore, we encourage the project proponents to not only plan for the completion of the Charlesgate portion of the project, but also to move forward expeditiously on the entire project, including the creation of an appropriate management structure.

The Alliance has signed onto the CAC comment letter on the DEIR because we support many of its comments and are committed to the CAC process. However, we believe that some significant issues remain to be resolved in order to maximize the public investment in Phase One and assure continued private and public support for subsequent project phases.

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As citywide park advocates, the Alliance actively monitors all aspects of the city's park system, including other large-scale projects such as the Central Artery and the ongoing efforts of neighborhood residents to create new open spaces while maintaining those that exist. It is this context we are concerned that effective safeguards be put in place that will **require** the proponents and owners to come to agreement in a **timely** manner on the development of a joint management and maintenance plan as outlined in the November 4, 1999 Memorandum of Understanding. Consistently, management and maintenance are under funded throughout our park system and consistently the value of capital improvements are not sustained. Therefore as we reviewed the DEIR, the Alliance looked closely at the management components of the project, balancing the need for clear commitments from the proponents with an understanding of the complexities in which decisions are made within city and state governments. N-1

Above all, it is our goal to secure the investment that will be made to the Emerald Necklace through the Phase One construction and landscape restoration to be certain that a park-wide standard for maintenance be established and a coherent system of responsibility and evaluation is detailed. The DEIR lays out these responsibilities clearly on page ES-31 in a summary of the monitoring and inspection programs. However, without a new management structure firmly in place it is unclear how effective and enduring these efforts will be.

We are therefore suggesting, as one of our primary comments that the public commitments of the proponents be clearly articulated and a mechanism for monitoring those commitments be established by the Secretary. If need be an addendum to the Memorandum of Understanding between the City and State may be executed to achieve this goal. N-2

With these commitments firmly detailed, the Secretary may wish to consider creating an independent oversight committee to monitor those commitments in a public forum, similar to the manner in which the Central Artery Oversight Committee monitors the environmental commitments along the Central Artery. This will hold the proponents to standards that can be publicly reviewed and discussed. The creation of an oversight committee will allow the development of *measurable outcomes* and will create a structure in which the CAC might operate in the future. N-3

While we offer preliminary support for Phase One of the project and view the DEIR as a first step and interim document that defines its engineering and construction components we do not believe that it goes far enough in resolving critical issues around the management and maintenance and future funding not only of these infrastructure improvements but of the system as a whole. Unless these issues are resolved the initial capital investment cannot be sustained. The Executive Summary of the DEIR states "the Commonwealth of Massachusetts has committed to providing significant capital funding. The municipalities of Boston and Brookline, having been partners with the state and federal agencies in funding the first 7 million, are committed to obtaining capital funds to supplement the N-4

federal and state sources." These commitments and the allocation of this capital money must be identified in the FEIR or sooner. N-4 CONT.

The Charlesgate project must proceed but at the same time it must be acknowledged within the DEIR that this is a small component of a bigger systematic approach to solving the problems within the Emerald Necklace. Without a clearly defined commitment to subsequent pieces of work and ongoing maintenance this project may not succeed. N-5

Additional comments are as follows;

Overall

- A clear and consistent emphasis needs to be maintained throughout the document on all of the 5 project objectives (Provide Flood Control, Improve Water Quality, Enhance Aquatic and Riparian Habitat, Restore Landscape and Historic Resources and Institute Best Management Practices). N-6
- The Emerald Necklace must be discussed as a historic park system that is an important component within the citywide system. N-7
- The project must respond to the priorities of the Emerald Necklace Master Plan. N-8

Charlesgate

- Opportunities surrounding Boston University's proposed sailing pavilion and potential pedestrian connections to the Esplanade should be referenced. N-9

Management /Maintenance/Funding

- Technical and environmental commitments are thorough but the management and maintenance needs to be further scoped. N-10
- The use of volunteers should not be viewed as a substitute for a commitment by the city and state to provide the additional 13.8 FTE equivalents outlined within the draft management report as necessary for achieving higher management standards. The FEIR must prioritize the use of staff with specialized skills vs./ volunteer management & training. Where else in the city do volunteers supplement public services (parks, hospitals, schools)? If these models exist, what can we learn from them? N-11
- DEIR does not identify a preferred management structure, instead leaving that recommendation for the FEIR. An agreed upon timeline that benchmarks dates for the creation of the management structure, including financial support from the project proponents and owners must be developed. An independent oversight committee is a potential model to monitor the agreement. (see earlier comments). SEE N-4 SEE N-3
- FEIR needs to clearly articulate proponents and owners commitment to securing the investment with increased financial and manpower resources SEE N-4
- Clear measurable objectives and a mechanism for oversight must be established for critical maintenance needs. (for example, catch basin cleaning N-12

and street sweeping). This is a potential role for CAC or oversight committee. Standards must be applied consistently throughout both Boston and Brookline. N-12 CONT

- MDC's role and commitment to the project (including financial) as a landowner but not proponent should be clarified and documented. N-13
- The DEIR states, "The proponents agree that the level of maintenance described in Section 8 is appropriate. The proponents will seek to fund this level of maintenance, subject to appropriation and the availability of funds." If the proponents agree that the level of maintenance described is appropriate they should be required to develop dedicated funding streams to support that maintenance or consider soliciting no further capital funds. N-14

CAC/Oversight Role

- Is the Annual Update the best mechanism to demonstrate whether prior financial, management & maintenance commitments have been met? If obligations have not been met, what are the implications? We recommend that the Annual Update should both look at the past performance as well as project future objectives and be reviewed by an independent oversight committee. N-15
- The CAC should continue for the life of the restoration of the Emerald Necklace "in its entirety". N-16

The Boston GreenSpace Alliance appreciates the opportunity to offer comment on the Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation DEIR. As the project moves forward we please let us know if we can assist in any way.

Sincerely yours,

Patrice A Todisco

Patrice A. Todisco
Executive Director

AP

EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

April 8, 2002

RECEIVED
APR 8 – 2002
MEPA

Mr. Bob Durand
Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Mr. Arthur Pugsley, IV, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02114

RE: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project, EOEA No. 11865

Dear Secretary Durand:

The members of the Emerald Necklace Citizens Advisory Committee ("CAC") enthusiastically support the Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project (the "Project"). The CAC believes that the Draft Environmental Impact Report ("DEIR") meets the requirements of the Scope set forth in the April 29, 1999 Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form (the "Certificate"), and the requirements of 301 CMR 11.07(6). The CAC believes that there are certain issues for which the Proponents should provide further detail and analysis. These are outlined below. However, the CAC urges you to make a finding that the DEIR is adequate, and that such further detail and analysis be set forth in the final environmental impact report ("FEIR").

The CAC understands that it is important for the approval of the Charlesgate portion of the Project to proceed as quickly as possible so as to insure that federal funds available to defray a significant part of the cost are not lost. While it is agreed that it is necessary to dredge this area, as a first step to insuring the ultimate success of the flood control aspects of the whole Project, dredging in this area alone is not sufficient, and will not by itself alleviate the threat of flood anywhere within the Muddy River watershed. The information provided in the DEIR with respect to Charlesgate meets the special requirements for that area outlined in the Certificate. We do not believe that allowing this small portion of the Project to proceed before environmental analysis of the full Project is complete will result in any negative environmental impacts. We therefore urge

you to allow the Charlesgate dredging to proceed in advance of the rest of the Project, as authorized in the Certificate.

The members of the CAC would like to thank the Secretary for giving them the opportunity to participate in this Special Review Process for the Project. The CAC wants the Project to proceed in its entirety. We look forward to continuing our involvement with the Proponents, the Emerald Necklace Conservancy, and hopefully, the MDC as well, to realize the vision expressed in the Emerald Necklace Master Plan.

The CAC commends the Proponents for their cooperation in developing and proposing the project as outlined in the DEIR. The CAC supports the consultants' thorough analysis of the project alternatives and screening methods used to select preferred alternatives including, but not limited to, bank-to-bank dredging and associated environmental mitigation. The Project was well communicated to the CAC over the course of two (2) years of meetings and is appropriately reflected in the DEIR.

Both the Proponents and their consultant team performed in an effective manner to educate the CAC and to develop a sense of trust around highly technical aspects of this complex project. The CAC would like to specifically commend Marion Pressley, of Pressley Associates, Inc. and Dr. Charles Beveridge, for their diligence in mining and compiling the historical data necessary to effect sound rehabilitation of the cultural landscape; Bruce Conklin and the team from Camp, Dresser & McKee, for the care and attention to detail with regard to the engineering of the Project; and Jason M. Cortell and Associates Inc.

System-Wide Vision

The Emerald Necklace was designed and constructed as a continuous park system. This Project should reflect that same seamless connection – from Charlesgate through Wards Pond, and across all three ownership jurisdictions – Boston, Brookline, and the MDC. Furthermore, consistent high-quality maintenance is essential to the future success of a project of this magnitude and national significance. To achieve the goals of the Project, there must be a system-wide maintenance and management approach commensurate with the anticipated level of capital investment. Just as achievement of the outcome intended by this Project is dependent on the completion of all phases, maintenance procedures must encompass the entire park system, including this Project and future phases. Uniform standards for the entire system that address maintenance activities, regulations, signage, and pedestrian crossings are examples of the types of good stewardship mandated for this Emerald Necklace Park System.

Stewardship / Future Commitment

A long-term commitment by the Proponents is the most critical component of this Project. No one has stated this premise more clearly than Frederick Law Olmsted himself, who wrote in 1873:

> *"The Park Commissioners are trustees and managers for the whole body of owners of a large amount of public property. Their business is of two kinds; that of forming parks [and] that of keeping them. The second is the graver responsibility. The Commissioners are to be holden to a stricter account if the arrangements they make for it are ill judged or if they delegate it to faithless or indifferent agents."*

The CAC recognizes that the current conditions of the park system have resulted from deferred maintenance, limits on funding, and a lack of both stewardship and a full understanding of the resource's needs. The Proponents have not fully persuaded the CAC that they will live up to the stewardship standards the public and the Secretary both expect. The park system deserves a long-range view, which should be the cornerstone of this Project and the realization of the Emerald Necklace Environmental Improvements Master Plan.

We recognize that the City of Boston and the Town of Brookline are parties to the Memorandum of Understanding ("MOU") effective as of November 4, 1999 with the Executive Office of Environmental Affairs, and others. We further recognize that in entering into the MOU, the municipalities have undertaken to work together to submit a joint maintenance and management plan and have accepted responsibility for their respective shares of future maintenance and management costs. We firmly believe that the Proponents should be required to provide in the FEIR specific details of how they will meet these responsibilities. O-1

Maintenance and Management

The Maintenance Plan prepared by sub-consultant ETM Associates ("ETM") at the request of the CAC (and included as Appendix J to the DEIR) provides guidance in achieving the high standards of stewardship we all expect for this treasured landscape and water park. These stewardship standards will best be achieved by the creation of a new management structure, such as one of the operating models described by sub-consultant Clarissa Rowe (of Brown and Rowe, Inc.) in Table 8.1, Comparison to Other Park Models. Completion of this Phase I Project will contribute significantly to the goal set forth in the Environmental Notification Form ("ENF") "to ensure the continued restoration of Olmsted's Emerald Necklace in its entirety." The CAC believes that the mitigation techniques outlined in the DEIR will minimize negative environmental impacts and the associated effects upon the citizenry, only so long as they are O-2

carefully implemented and monitored throughout, and well beyond the construction phases of the Project. O-2

Management

The need for an organizational structure to ensure consistent management throughout the park system was repeatedly discussed by the CAC. While the CAC is disappointed that the sub-consultant's report on management models did not make a specific recommendation, we recognize the difficulties of managing this park system, which is located in multiple jurisdictions.

The Proponents have described four (4) new alternative management structures in the DEIR. They have also stated that one of these alternatives will be identified in the FEIR as the initial management structure. The CAC supports this approach and recommends that a cooperative cross-jurisdictional management structure be studied, selected, and described in the FEIR, including a timetable for implementation. The CAC encourages the Proponents to involve both the Emerald Necklace Conservancy and the CAC in developing the management solution, where appropriate. O-3 CONT. ON p.10

The CAC also supports the concept of an overall maintenance coordinator to oversee the resource, regardless of the management structure selected. The role of such a coordinator should be carefully defined and the position included in whichever new management structure is specified in the FEIR. The development of such a position should also involve the advice and participation of the CAC and the Emerald Necklace Conservancy. O-4

Maintenance

The CAC believes that high quality maintenance is crucial to the success of the Project as the Certificate makes clear. The Certificate specifically requires the proponents to include in the FEIR clear and specific requirements with respect to a management and maintenance plan.

The inclusion of the ETM Maintenance Plan in the DEIR is a welcome step towards addressing the CAC's serious concerns about maintenance of the existing, and soon to be rehabilitated, resource. To accomplish the much needed goal of a one-park, one-system view, higher maintenance standards should be consistently applied across all jurisdictions and techniques used should be specific to each particular type of parkland, as specified in the ETM Maintenance Plan. The CAC suggests that public/private partnerships, appropriate employee training and oversight, and modern technology methods (including use of electronic databases and geographic information systems) be adopted. We urge the Secretary to require the Proponents to commit to this plan, or an equally acceptable one, and for the Proponents to provide more information about the required resources as a part of the FEIR. O-5

Commitment to Project Goals Including Historic Resources

The five objectives – Flood Control, Water Quality and Wildlife Enhancement, Historic Preservation and the Institution of BMPs – should be given equal emphasis. While acknowledging that the immediate need for this Project is flood control in both Boston and Brookline, the other goals have long-term implications for the historic character and environmental health of the park system. Contradictory statements, omissions, and inconsistent references to Historic Preservation should be corrected in the FEIR. The CAC supports the rehabilitation of the entire Emerald Necklace Park System and its contributing features, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties. O-6

Funding

The CAC's primary concern is the Proponents' ability to maintain a continued financial commitment to the Project. In order for the Project to be successful, the Proponents must make a considerable capital investment and increase their operating funds to safeguard both public and private expenditures. We stand ready to assist and support the Proponents in securing the necessary capital investments needed to ensure the successful completion of Phase I of the Project. O-7

While the federal and state governments, we trust, are committed to fund major portions of the Project, financial commitments from the Proponents must be secured. For example, operational and capital budgets should be consistent with the needs of this Project. Projections of expenditures should identify (wherever possible) the anticipated source of revenues which support them. Over the intermediate and long term, the Emerald Necklace Conservancy should be invited to participate in developing a requisite funding strategy. O-8

The CAC believes it is most unfortunate that the Metropolitan District Commission ("MDC") is not a proponent of the Project. Given that the MDC parkways are adjacent to many parts of the Muddy River, failure to successfully involve the MDC will continue to have short and long-term deleterious effects on the sustainability of the Project and the health of the park system. The CAC strongly recommends that dedicated funding, possibly through a line item, be provided by the MDC for Emerald Necklace park maintenance and stormwater BMPs within its jurisdiction. O-9

Increased maintenance funding is needed to properly care for and sustain these Project improvements as well as the entire Emerald Necklace Park System. For example, as stated in the DEIR, Brookline and Boston need an additional 13.8 full-time employees (21,575 hours), for maintenance alone in order to close the O-10

gap between existing and needed staffing. Similarly, the MDC needs to increase its maintenance capacity commensurate with the Proponents. O-10 CONT.

The use of an increasingly efficient workforce, or volunteers, to accomplish the goals of this Project should not be assumed by the Proponents. Progress toward improving maintenance standards should be measured against performance, and with CAC concurrence.

Best Management Practices ("BMPs")

The Proponents' consultant team has emphasized to the CAC that the effective implementation of Best Management Practices is crucial to minimizing re-sedimentation and maximizing the useful life of the capital investment. As future Emerald Necklace Master Plan projects proceed through the MEPA process, the CAC recommends that the Secretary require appropriate BMPs to be consistently implemented. It is imperative that the Proponents, the MDC, and other property owners abutting the park system, as well as those in other municipalities within the watershed, fund and carry out the recommended BMPs. O-11

The CAC strongly supports past as well as ongoing BMPs which the Proponents have undertaken, such as elimination of illegal cross connections, regular street sweeping in the Fenway area, control of Canada geese through use of fencing and other proactive measures, and monitoring of water quality at Willow Pond. These efforts must be expanded. A guiding principal throughout this Project should be continued progress by the Proponents in implementing and monitoring BMPs, both existing and proposed. To monitor progress, the CAC recommends that the Secretary require the Proponents and the MDC to report regularly on the implementation of BMPs within the entire park system. At least initially, beginning with the issuance of the Secretary's determination on the FEIR, such reports should be prepared semi-annually. The appropriateness of semi-annually reporting could be reviewed at a later time. O-12

The following BMPs (though not a comprehensive list) should be implemented:

- ✓ Street sweeping accompanied by a towing program. (Signage is in place, but towing must be enforced to ensure that streets actually get cleaned.) O-13
- ✓ Reduction of animal waste, litter, and improper dumping in storm drains through public education, signage, and ordinance enforcement (including fines). O-14
- ✓ Immediate efforts to control the Canada goose population, as a first step in a regional solution. O-15
- ✓ Collection of trash and yard waste at the Victory Gardens. O-16
- ✓ Reset low curbs and repair broken curbs throughout the system to minimize runoff and erosion. (While low curb settings are usually O-17

associated with the MDC parkways, they are also a problem in Brookline on Pond Avenue.)

- ✓ Consider an alternative location, such as Millenium Park, if the Daisy Field staging area will disrupt softball for more than one season, to reduce erosion into the adjacent waterway.] O-18
- ✓ Maintain a permanent record, accessible to the Proponents and the CAC, of BMP activity including catchbasin cleaning and dredging.] O-19
- ✓ Consider cisterns or other methods to reuse stormwater runoff and reduce irrigation requirements, consistent with recently-published EOEA guidelines (One possible location is Mother's Rest.)] O-20
- ✓ Apply consistent standards for street-sweeping and catch-basin cleaning throughout all jurisdictions within the watershed (including Mass. Highway's Route 9).] O-21

Furthermore, to the extent that these and other BMPs can be implemented during, or even before construction, the CAC strongly recommends that the Proponents do so. Wherever feasible the Proponents should work together to implement all BMPs consistently throughout the park system.] O-22

Infrastructure

The DEIR describes infrastructure needs in Boston, but clearly omits the culvert headwall at Leverett Pond. This should be included as a part of the Project. The CAC also feels strongly that the City of Boston should make a timely decision on removal of the "Jug Handle" at the Sears Rotary before construction begins in the Fenway area, so that possible daylighting (and attendant cost savings through reduced culvert length) and historic shoreline alignments can be coordinated.] O-23] O-24

Construction

The CAC is concerned that the Army Corps of Engineers (ACOE) environmental document honor the Project objectives (including historic preservation) and preserve the environmental mitigation set forth in the DEIR, to the greatest extent possible without jeopardizing potential federal funds. The ACOE document should be reviewed for any differences during the public comment period. The CAC believes this Project should not be modified to allow expediencies which would change the character of the Project as described in the DEIR, and as supported by the CAC and public-at-large. For example, culverts to be built should be arched, as opposed to boxed, and the channel should follow a historic rehabilitation model, and not straightened.] O-25

The position of an environmental monitor during construction is vital to overseeing that environmental permit conditions are met. The CAC believes the provision for this position in the DEIR meets the communities' needs.] O-26

Construction work guidelines should include the following provisions:

1) Signage describing the project should be placed at each construction staging area to educate the public. O-27
2) All work should stop no later than 11:00 pm. O-28
3) A Transportation Management Plan, which would include oversight by the BTD, should be included for the Fenway Area during construction activity. O-29

Missing Information / Request for Additional Data

The following matters relating to wildlife, public health, and the future of Charlesgate were inadequately addressed in the DEIR and should be more fully addressed in the FEIR:

1) Flooding not only damages property, but spreads pollution (fecal colliform) creating a public health risk. This risk was not addressed in the DEIR and should be in the FEIR. O-30
2) More data on in-stream sedimentation basins and their water quality impacts should be provided in the FEIR. The analysis should include future dredging, frequency and cost effectiveness. O-31
3) Other BMP structures that reduce stormwater runoff at the source, such as infiltration devices and cisterns should be more fully described and analyzed in the FEIR. O-32
4) Relocation of wildlife during dredging and construction, possibly using volunteers, should be discussed with the Massachusetts Division of Fisheries and Wildlife, the Massachusetts Audubon Society, the New England Aquarium and others. O-33
5) Anticipating that the Secretary will approve early action for Charlesgate, the FEIR should include an outline and timetable for a structured public process to determine the rehabilitation of the Charlesgate parks. The CAC believes that a design charrette for this finite parkland provides an excellent opportunity for public support, participation and funding. O-34
6) Pedestrian access across Willow Pond Road should be improved in Boston. Footpaths across Willow Pond Road should connect. The current condition of desire lines by the Pond and in the area to be disturbed as a staging area is a problem of circulation and erosion. This work should be addressed in the FEIR. O-35
7) More information should be provided regarding specific site improvements at Daisy Field. These improvements should be consistent with the Emerald Necklace Master Plan. Repair of the site following its use as a staging area should eliminate erosion of field surface material into Willow Pond and light pollution at night. O-36

Executive Summary

The CAC considers the Executive Summary to be the most visible part of the DEIR, that part which will be most read by the public. As such, it should persuade as well as inform. The photographs, graphics and historical data are important inclusions. However, the project scope should be more clearly stated including the goal of historic preservation. The Executive Summary should be refined in the FEIR to provide an effective tool for educating the public about the Project. O-37

Miscellaneous Issues

There needs to be a clarification of the appropriate period for the contractor's guarantee of new plants, when inspections of new plantings should begin and the appropriate frequency of inspections for status of invasive species. O-38 While two of the islands in Leverett Pond are considered wildlife habitats and will be treated to remove invasive species, their shorelines will not be stabilized. The CAC feels that the eroding edges should be stabilized as part of the Project, as a BMP. There is contradiction in the DEIR on this point. Language on page 6-69 contradicts statements made by consultants. O-39

CAC Future Role / Responsibilities

The CAC recommends that the CAC's role be continued at least through completion of Phase 1, and anticipate that its precise role subsequent to the FEIR will be determined from discussions with the Proponent between now and the submittal of the FEIR, and thereafter with the Secretary. Specifically, we recommend the CAC's participation through the Special Review Process should include but not be limited to the following activities:

1) Review of the additional information developed by the Proponents in connection with the issues which you determine must be analyzed in the FEIR,
2) Review of updates on permitting, the Charlesgate dredging progress and other construction progress,
3) Review of progress reports on structural and environmental BMP's,
4) Monitoring of success of removal of invasive species, and
5) Review of results of water-quality monitoring.

O-40

At present, we think that the Annual Update process should include a minimum of one CAC and one public meeting, but more may be needed. In general, we think that we will be able to propose a more complete outline of our role as the FEIR is being developed and the timetable for the Project becomes clearer. We would appreciate any guidance you can provide us in that regard.

Conclusion

As stated at the outset, the CAC enthusiastically supports the Project and wants it to proceed in its entirety. We urge you to find the DEIR adequate, to allow the dredging in Charlesgate to proceed without further MEPA review, and to limit the scope of the FEIR to those issues not adequately dealt with in the DEIR. Specifically, those include the issues already discussed earlier in this letter and the following:

- ✓ Selection of a new management structure with a timetable for implementation. This should include detailed information on roles and responsibilities for maintenance, management and operation of the park system involving a collaboration of all three landowners, the City of Boston, the Town of Brookline, and the MDC. Additionally, the CAC and the Emerald Necklace Conservancy should be involved in evaluating the management alternatives. SEE O-3
- ✓ Detailed information on funding strategy necessary to complete the Project (including the increased capital costs). This funding plan should provide detailed information on the contributions by federal and state agencies as well as the municipality's required match, consistent with the MOU. O-41
- ✓ A detailed plan to improve maintenance operations for the park system, to meet the objectives outlined in the ETM Maintenance Plan. This should include an annual action plan that prioritizes the recommendations of the ETM report, provides detailed information on how the recommendations will be funded, and includes a schedule for implementing the changes prior to the completion of construction. O-5 CONT.
- ✓ Additional technical information on BMPs and sedimentation basins. O-11 CONT.

Finally, the CAC members representing the Brookline Conservation Commission and the Charles River Watershed Association do not agree with every aspect of this comment letter, and believe that certain information and analysis (beyond what is requested in this letter) is necessary or appropriate. These organizations will address those recommendations in their own comment letters.

Respectfully submitted,

The Emerald Necklace Citizens Advisory Committee:

Charles Alan Birnbaum, National Park Service
Dudley Bonsal, Charles River Watershed Association
Kelly Brilliant, Fenway Alliance
Edward Burke
Isabella M. Callanan, Friends of the Muddy River
Suzanne Comtois, Fenway Community Development Corporation
Christine Cooper, Jamaica Pond Project
Edward Cutler, Ph.D.
Frances Allou Gershwin
Alan Goodman, The Abbey Group

George Hagerty, Fenway Studios, Inc.
Adam Kahn, Brookline Conservation Commission
Frances J. Kemp
John Leahy
Arleyn A. Levee, Former Chair, National Association for Olmsted Parks
Arlene Mattison, Emerald Necklace Conservancy
Hugh Mattison, Friends of Leverett Pond
Lauren Meier
George Proakis
Marion Sabal, Fenway Garden Society
Patrice Todesco/Christine Gimbal, Boston GreenSpace
Fredericka Veikley, Fenway Civic Association
Eileen Woodford, National Parks & Conservation Association

cc: Justine P. Liff, Commissioner, Boston Parks and Recreation Department
Thomas DeMaio, Brookline Commissioner of Public Works
John F. Burckardt, PE, Parsons Brinckerhoff, c/o Boston Parks and Recreation Department
Margaret Dyson, Boston Parks and Recreation Department
Stanley Ivan, Chief Engineer, Boston Parks and Recreation Department
Erin Chute, Brookline Director of Parks and Open Space
Tom Brady, Brookline Conservation Administrator/Tree Warden
John Sullivan, Jr., Chief Engineer, Boston Water and Sewer Commission
Arthur Pugsley, IV, Executive Office of Environmental Affairs
Betsy Shure-Gross, Executive Office of Environmental Affairs
Mark Smith, Executive Office of Environmental Affairs
Patrice Kish, Department of Environmental Management
Richard Thibedeau, Department of Environmental Management
Samantha Overton Bussel, Deputy Commissioner for Policy, Metropolitan District Commission
Loraine Della Porta, Massachusetts Office of Dispute Resolution
Bruce Conklin, PE, Camp, Dresser and McKee, Inc.
Jason M. Cortell, Jason M. Cortell and Associates Inc.
Marion Pressley, Pressley Associates, Inc.

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AP

CITY OF BOSTON
THE ENVIRONMENT DEPARTMENT

Boston City Hall, Room 805 • Boston, MA 02201 • 617/635-3850 • FAX: 617/635-3435

RECEIVED
APR 08 2002
MEPA

April 8, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, MA 02202
Attention: Arthur Pugsley, MEPA Office

Re: Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project – Draft Environmental Impact Report
EOEA #11865

Dear Secretary Durand:

The City of Boston has reviewed the Draft Environmental Impact Report (DEIR) for the above referenced project and hereby submits the following comments.

PROJECT

The project proponents, the City of Boston Parks and Recreation Department (BPRD) and the Town of Brookline (Brookline), are submitting for review one element of a multi-phased project to rehabilitate, restore and enhance Frederick Law Olmsted's Emerald Necklace as outlined in the approved Emerald Necklace Master Plan (MP). The Muddy River Project, with four components, is the initial phase of this large-scale and noteworthy undertaking.

As the Emerald Necklace is a designated landmark, the entire project is subject to MGL C. 772 of the Acts of 1975, as amended, which requires review and approval by the Boston Landmarks Commission (BLC). Orders of Conditions from the Boston Conservation Commission (BLC) will also be necessary.

The current proposal, Phase I of the Muddy River Project, contains infrastructure improvements including flood control and water quality improvements; sediment dredging; the removal of invasive species; the rehabilitation and restoration of wetland habitats, aquatic and riparian, and historic resources; the development and implementation of basin-wide Best Management Practices (BMPs) to maintain improvements; and the rehabilitation of staging and other areas disturbed by construction activities.

Work on Phase I is to be divided into these areas:

- Charlesgate – from the Richardson Bridge on Boylston Street in Boston to the Charles River;
- Back Bay Fens – an area from Boylston Street at the Richardson Bridge upstream to the Landmark Center (formerly the Sears Building at the intersection of Park Drive, Brookline Avenue and Boylston Street AKA Sears Rotary);

- The Riverway – begins at the Sears Rotary, runs parallel to the Muddy River, includes three Olmsted-designed islands and ends roughly at the eastern end of Brookline Avenue; and
- Olmsted Park – runs along the Jamaica Way and includes three ponds, Leverett, Willow and Ward's, and a large sandbar created by discharges from the Village Brook Drain, the largest stormwater outfall into the Muddy River.

Work on various elements of the project will include the following:

Charlesgate

The dredging of about 3,300 cubic yards (CY) of sediment; replanting vegetation selected from the Olmsted list; replacement of pathways and lighting; and the removal of waterway obstructions beneath Ipswich Street.

Back Bay Fens

Bank-to-bank dredging of 96,000 CY of sediment and debris, including the removal of dense stands of *Phragmites* (23,500 CY); the creation of four sedimentation basins by over-dredging at the Sears culvert, downstream of the Avenue Louis Pasteur Bridge, at the Victory Gardens and downstream of Agassiz Road; construction of a vegetated swale near the Victory Gardens to reduce overland flow velocities and trap pollutants; reconstruction of curbs, gutters and storm drain systems in the Fens and along The Fenway and Agassiz Road to minimize overflows onto parkland; installation of a particle separator at the end of the Emmanuel College drain; evaluate possible sites for other particle separators; revegetation of disturbed areas; construction of culverts and daylighting at the former Sears parking lot and at the Fens Bridge; reconstruction of the upstream and downstream headwalls of the Fens Bridge to historic rehabilitation standards; and development and implementation of an educational program aimed at reducing the use of pesticides and herbicides among community gardeners.

The Riverway

Bank-to-bank dredging of 20,200 CY of sediment and debris; the creation of sedimentation basins by over-dredging at Netherlands Road and upstream of Brookline Avenue; removal of 10,000 CY of invasive species; revegetation of disturbed areas; and reconstruction of curbs, gutters and storm drain systems to prevent bank erosion along The Riverway.

Willow Pond

Dredging of 5,900 CY of sediment and debris; reintroduction and reshaping of an island; enhancement of habitat for the three-spined Stickleback; repair of the rock dam between Spring Pond and Willow Pond; and restoration of the culvert bridge with new pudding stone "teeth."

Leverett Pond

Bank-to-bank dredging of 23,900 CY of sediment and debris including the sand bar opposite Village Brook Drain; rehabilitation of the historic island; restoration of the Babbling Brook at the inlet from Willow Pond; evaluation of the potential effectiveness of a particle separator at the Daisy Field outfall; evaluation of the feasibility of storm drain treatment devices in the Village Brook watershed; and reorientation of the Daisy Field backstop and ballfield.

Ward's Pond
Dredging 15,600 CY of sediment and debris and revegetation using plants from the Olmsted list.

Construction
Construction mitigation will be implemented via contract documents with specific requirements to minimize environmental impacts and through contractor-prepared plans that will address dredging and dredged material management; stormwater/dewatering pollution prevention; water quality monitoring; traffic mitigation; rodent control; and historic and natural resources.

The anticipated construction schedule calls for:

- Spring 2002 – Charlesgate portion of the project is bid;
- Summer 2002 - Charlesgate construction begins;
- Fourth Quarter 2002 - Charlesgate dredging is completed;
- First Quarter 2003 - Muddy River element of the project is bid;
- 2003 - Muddy River construction begins; and
- 2006 - Muddy River is completed.

Management and Maintenance
The DEIR indicates agreement among Boston, Brookline and the Metropolitan District Commission (MDC) that additional maintenance staff and time will be needed to protect the substantial investment in parkland assets. A plan for future maintenance, including pest and rodent control. Monitoring and inspections to ensure that Phase I improvements are preserved will be conducted for water/sediment quality, planting and invasives control, fish/wildlife resources and preservation of historic character. A Quality Assurance Program will be established and Annual Updates filed with MEPA.

Recommended basin-wide BMPs include:

- improvements to municipal and state agency street sweeping programs;
- improved tracking of catch basin sediment accumulation so that the frequency of cleaning can be adjusted according to need;
- addressing desire lines and maintaining trails to prevent erosion;
- a joint Boston/Brookline public education program to focus on litter control, clean-up after pets and limiting use of pesticides and herbicides;
- a joint Boston/Brookline waterfowl control program that would combine regulation and public education;
- enhancement of municipal implementation of "pooper scooper" regulations;
- a pilot program to determine the effectiveness of several existing particle separators in the Muddy River watershed; and
- maintenance of historic planting and turf areas along shorelines.

BMPs will also be used to maintain new culverts and in the areas of source and treatment control. After large storm events, preventive and corrective measures will be implemented and an emergency action plan has been developed for flooding situations.

RESPONSE
The Boston Environment Department, including the BLC and BCC, strongly endorse the Emerald Necklace Master Plan and the proposed Phase I Muddy River Restoration Project.

Both the collaborative planning and restoration processes represent a unique and powerful commitment by the City of Boston, Town of Brookline and residents to reinforce Olmsted's social and environmental urban vision. The result will be a single, organic system with improved hydrology, a balanced ecology and historic landscapes available, in Olmsted's words, to "bring peace and refreshment to the city dweller."

The DEIR is a painstakingly detailed document that addresses environmental issues and provides a valuable historical perspective on the development of the Emerald Necklace. We commend the proponents and their consultants for their preparation of a document that should serve as a model for similar projects.

We support a waiver of further review of the Charlesgate element as any outstanding issues will be addressed through a BCC Order of Conditions. The Notice of Intent (NOI) for the Charlesgate area should address interim rehabilitation and the NOI for Phase I should include identification of shade-tolerant plantings for vegetating this area. Management plans for the Charlesgate area should be developed and approved in final form before work in this section of the project is complete.

The U. S. Army Corps of Engineers (ACOE) will be issuing a draft decision regarding the project in the near future. The Final Environmental Impact Report (FEIR) should include this decision.

The Boston Water and Sewer Commission (BWSC) spends more than $300,000 annually for the disposal of materials removed from catch basins. This cost does not include labor and general operating and maintenance costs. We request that the proponents help to educate the public and further improve the water quality of local waterbodies by agreeing to the permanent installation of plaques at all project storm drains that bear the warning "Don't Dump -- Drains to Boston Harbor." The casting can be obtained from the Engineering Division at the BWSC (617-989-7000). Installation of these plaques should be required by contract.

Pervious paving materials should be considered for new and reconstructed sidewalks. The BCC requests that BPRD contact Timothy Famulare, BCC Executive Secretary, at 617-635-3850 to discuss this option. The FEIR should report on evaluations regarding this subject.

Historic and Archaeological Resources

Staff of the BLC have enjoyed working with the proponents and look forward to additional details about the project, including materials that will be used in restoration and new construction elements. The BLC's formal review of the project will begin with the Charlesgate component and the proponents may submit an application at any time.

Every effort should be made to ensure that there are no above-ground structures associated with particle separators and other mechanical systems. The addition of any structure must be approved by the BLC.

The BLC notes that it was the construction of the Charles River Dam that changed the water in the river from salt to fresh (Volume I, page 4-57).

The FEIR should clarify the status of the project-area historic resources listed in Volume I, Section 4, Table 4-1 by identifying the designation of each resource (ex. National Register, individual landmark, etc.). P-5

Excavation for culvert construction in a number of areas may uncover drainage structures and other features original to the Olmsted design. If such features are encountered, the City Archaeologist, Ellen Berkland, should be contacted immediately. Ms. Berkland can be reached at 617-635-3850. This requirement should be included in all construction contracts. P-6

Construction

This department and the Boston Landmarks Commission (BLC) receive complaints about construction-related truck traffic and the resulting vibration that can negatively affect historic resources. A substantial number of daily truck trips will be necessary to transport sediment and debris removed from waterways and the totality of the project area contains numerous historic resources. Trucks routes should avoid these resources and residential streets to the greatest extent possible and contracts should mandate compliance. One area of particular concern from the residential perspective is the truck route to the Lagoon area of the Back Bay Fens. Trucks must be specifically prohibited from accessing Park Drive via Jersey Street. P-7 The FEIR should detail the way in which the use of all truck routes will be enforced and outline a plan for notifying residents and businesses of the required routes and how reports of route violations can be made. P-8

Preventing material from being deposited onto City streets, tracked along transport routes and entering the stormwater system must be addressed in the FEIR. Wheel washes with proper provisions for runoff should be at each truck egress point as should one to two inches of gravel no less than ten (10) feet in length. Truck routes should be inspected daily and vacuum sweeping employed on City streets and MDC roadways if dredge spoils and other project-related materials have been left behind. P-9

Air Quality, Public Health and the Voluntary Diesel Retrofit Program

According to the Massachusetts Department of Environmental Protection (DEP), about 33 percent of mobile source particulate matter (PM) and ten percent of all nitrogen oxide (NO_x) pollution in the northeast is caused by construction vehicles. More than 90 percent of diesel engine particulate emissions are highly respirable and carry toxins deep into the lung, exacerbating human respiratory ailments. The U. S. Environmental Protection Agency (EPA) has proposed classification of diesel exhaust as "highly likely to be carcinogenic in humans." It estimates that diesel engines currently on the road can run for 1,000,000 miles and remain in operation for as much as 20 to 30 years. This amounts to 160 to 240 tons of pollution over the life of each engine.

In November 1998 DEP inaugurated the Massachusetts Clean Air Construction Initiative (CACI) as part of its Mobile Source Emissions Control Effort. The Voluntary Diesel Retrofit Program of the CACI is designed to reduce air quality degradation caused by emissions of carbon monoxide (CO), volatile organic compounds (VOC), NO_x and air toxics from heavy-duty, diesel-powered construction equipment. Oxidation catalysts and catalyzed particulate filters reduce toxic emissions of formaldehyde, benzene, acrolein and 1-3 butadiene by as much as 70 percent.

The CACI offers contractors a cost-effective way to decrease localized adverse impacts and reduce dust and odor complaints from project abutters and regulatory agencies. Experience with a pilot project that retrofitted 83 pieces of equipment working on the Central Artery/Tunnel (CA/T) project showed that:

- vehicles did not experience significant power loss;
- there are no additional operation and maintenance (O & M) or fuel costs; and
- engine manufacturers continue to honor vehicle warranties.

We strongly urge proponents to contact Steven G. Lipman, P.E. of DEP to discuss the CACI and how it might be used to minimize adverse construction impacts from the project. Mr. Lipman can be contacted at (617) 292-5698. P-10

Noise and Vibration

Noise originating from construction sites can be moderated by adopting the following measures:

•decking on roadways should be secured so that there is no rattling when traffic passes over;

•back-up alarms on vehicles and equipment should be either ambient-sensitive or manually adjustable and flag men should be used instead during nighttime hours;

•contracts should include language requiring contractors to properly maintain equipment;

•as small a hoe ram, pile driver and jackhammer as possible should be used and only powered to the degree needed to perform the work. Hoe rams should be equipped with noise suppression enclosures (such as the Allied Hy-Ram); P-11

•stationary noise producing equipment such as pumps and generators should be placed as far away as possible from residential receptors;

•engine housing panels on all equipment should be kept closed; and

•when not in use, equipment should be shut off.

In addition, noise curtains/blankets, used successfully by the Central Artery/Tunnel (CA/T) project, should be employed to reduce sound levels that will affect sensitive receptors. Project contracts should require implementation of each of these actions.

City of Boston Code Ordinance 16-26.4 allows construction from 7:00 a.m. to 6:00 p.m., Monday through Friday. This department receives frequent complaints about noise generated at construction sites before 7:00 a.m. Complaints show that contractors often allow workers on site before that time. Noise is frequently related to the arrival and run-up of diesel equipment and the preparation and movement of materials. We remind the proponent that no sound-generating activity is legally allowed to occur at the site prior to 7:00 a.m. The Boston Air Pollution Control Commission (APCC) should be notified each time a permit is sought from the Commissioner of the Inspectional Services Department to work outside of these limits. The APCC can be reached at 617-635-3850. P-12

Culvert construction under Brookline Avenue near the former Sears parking lot will be conducted during day and night but the duration of night work is not identified. Because residences are so close to this construction area, the minimum necessary amount of nighttime work should be conducted. In addition, the Residential/Institutional limits, rather than the Business/Recreational values, apply to this area under Regulation 3 of the

Regulations for the Control of Noise in the City of Boston. This restricts L_{10} sound levels to 75 dBA.

The APCC is concerned about the effects of nighttime construction on residents, including during the 7:00 p.m. to 11:00 p.m. period when foundation piles and sheeting will be installed. The FEIR should identify: the expected duration of night work; the proximity of residences, including dormitories, from the outer limits of the area in which nighttime work will be conducted; the expected sound levels at these sensitive receptors; mitigation measures that will be required by contract; the manner in which residents who will be affected will be notified of nighttime construction and how they will be to file disturbance complaints. P-13

The potential for construction-related vibration effects on existing structures must be considered and evaluated. The FEIR should identify structures that may be so affected and describe a monitoring and mitigation plan. A pre-construction survey of structures that may be subject to vibration should be conducted so that project-related damage can be readily distinguished from pre-existing conditions. P-14

Worker Transportation

Evidence shows that there are numerous environmental benefits to reducing the number of motor vehicles driven in the City of Boston at any time of the day or night. Motor vehicles emit 64 percent of the carbon monoxide (CO) in our country's air, 35 percent of the oxides of nitrogen (NO_x) and 27 percent of the volatile organic compounds (VOCs). NO_x and VOCs combine to create ground level ozone, a significant contributor to human respiratory illness. Vehicle trips, regardless of time of day, increase noise, congestion and degrade the quality of life in any neighborhood. In addition to the standard air pollutants caused by motor vehicles (CO, VOCs, NO_x and particulates), they may also leak or deposit rubber, lead, zinc, copper, cadmium, chromium, ethylene glycol and petroleum products. These contaminants affect air quality, water quality and land quality. (See Opportunities to Improve Air Quality through Transportation Pricing Programs, USEPA, EPA 420-R-97-004, 1997.)

One of the primary goals of this department is to improve air quality. Reducing the number of single occupant vehicles (SOVs) entering and leaving the city is not only related to traffic impacts but is essential to air quality improvement and quality of life. As such, we are committed to seeing that all effective steps are taken to encourage transit and high occupancy vehicle (HOV) use by commuters, including construction workers, and residents.

Roadways in the entire project area experience significant congestion daily. This factor, in addition to vehicle-related air quality and quality of life issues unrelated to time of day, suggest that Transportation Demand Management (TDM) should be implemented during the construction phase of the project. A TDM plan for construction workers would include: P-15

- providing secure, on-site storage so that workers do not have to transport tools and equipment each day;
- offering pre-tax payroll deduction for MBTA pass purchase;
- providing MBTA pass subsidies for all employees, including contract employees with a *pro rata* subsidy for part-timers (please see Commuter Check information for facts on tax benefits);

- if on-site parking is made available, charging workers a rate designed to discourage SOV commuting and encourage HOV commuting (three or more occupants per vehicle);
- providing a ride-matching service; and
- providing information on public and private transit routes.

P-15 CONT.

Thank you for the opportunity to offer comment. We look forward to the progress of this impressive and noteworthy project.

Sincerely,

Antonia M. Pollak
Director

cc: Justine M. Liff, Commissioner, BPRD
John P. Sullivan, Jr., P.E., BWSC

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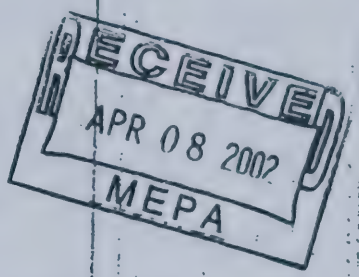
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AP

April 8, 2002

From: BikeBoston's Emerald Necklace Greenway Project
P.O. Box 743
Boston, MA 02130

To: Mr. Robert Durand, EOEA
251 Causeway St.
Boston, MA 02114



Dear Secretary Durand:

Our project is very excited about the coming Muddy River Clean Up and Improvements which will make a better environment for park users. Our projects primary interest is access to and through the Emerald Necklace and is very interested in opportunities this project may present for improvements to path systems and street-crossings.

ACCESS IMPROVEMENTS

- Create a path on MDC land adjacent to Storrow Dr. to connect from Beacon St. at Charlesgate to the Mass Ave Bridge at the Charles River. The detail of this is difficult to describe in a letter, but the right-of-way already exists and can actually easily and safely be walked today. Q-1

- Permanently close Netherlands Road where it cuts through the park to the Riverway. Today it only serves as a shortcut for cars turning to and from Brookline Ave; but is a great hazard to park-users. Its temporary closure as a staging area can lead to permanent closer Q-2

- Create a dual (second) path at the Northeast end of Leverett Pond from Rte 9 until the first dirt path branching off the paved bike path. This would reduce user conflict and be in the spirit of Olmsted's multi-path system
- In the area of the "daylighted" Muddy River at the former Sears Parking Lot, new paths will be created. These paths must make useful and safe connections for bicycles and pedestrians between the Riverway Park Paths and the Back Bay Fens paths. Safe crossings with traffic signals need to be provided for Riverway, Brookline Ave. and the Fens Bridg

BEST MANAGEMENT PRACTICES

- Bike Lanes have recently been installed on Penkins Street at the southern end of this project area. These lanes need to be kept clean with street-sweepers so they can be used
- As new paths are created and older ones restore there must be at least one path connecting continuo for bicycles and skaters. This through-path should be asphalt. A parallel walking path might be unpa but should be designed to not erode as have recent path "improvements" at Jamaica Pond and along the Riverway.

CONSTRUCTION PHASE

- Be sure staging areas do not interrupt bike pat
- Any fencing or hay-bales next to bike paths should be two-feet away for safe passage and sight-lines

Thank You

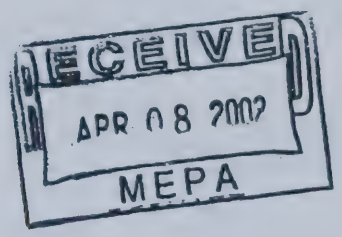
Jeffrey Ferris

AP R

AMERICAN UNIVERSITY
WASHINGTON, DC

CHARLES E. BEVERIDGE, SERIES EDITOR
CAROLYN F. HOFFMAN, EDITOR

April 5, 2002



Bob Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway St.
Boston, MA 02114

Dear Bob,

I greatly appreciate the leadership that you are providing the Commonwealth of Massachusetts in a broad range of environmental issues. In that context, I particularly appreciate the opportunities offered by the dredging program for the Muddy River to recover and revive the legacy of Frederick Law Olmsted's plan for the Back Bay Fens and Muddy River. That crucial part of Olmsted's legacy has been too long been neglected by the Commonwealth and the municipalities abutting it. I hope that you will use your oversight authority of the dredging program to help to ensure the restoration of all elements of Olmsted's plan, and to secure the longterm maintenance and management of the park according to today's best management practices. Fifteen years ago we made significant first steps toward repairing and restoring the invaluable series of parks designed by the Olmsted firm for the people of Massachusetts. Since the end of significant funding of that Olmsted Historic Landscape Preservation Program of the DEM in the late 1980s, there has not been sufficient investment and leadership at either the state or local level. This is the time to move strongly forward and secure a commitment looking far into the future. Having been born in Boston, and having devoted my career to understanding and increasing public knowledge of the significance of Olmsted and his work, I feel special concern about the historic preservation element of the Muddy River program. I wish you every success in working to secure the future of Olmsted's great park system along the Muddy River.

R-1

Sincerely,

Charles Beveridge

Charles E. Beveridge

THE FREDERICK LAW OLMSTED PAPERS
DEPARTMENT OF HISTORY
4400 MASSACHUSETTS AVENUE, NW WASHINGTON, DC 20016

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The Commonwealth of Massachusetts

Metropolitan District Commission

20 SOMERSET STREET
BOSTON, MA 02108

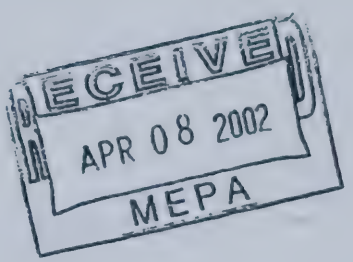
JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

DAVID B. BALFOUR, JR.
COMMISSIONER

TELEPHONE: (617) 727-3227
FACSIMILE: (617) 727-1230
www.state.ma.us/mdc

April 8, 2002



Bob Durand
Secretary
Executive Office of Environmental Affairs
Attn: MEPA Office, Arthur Pugsley
251 Causeway Street, Suite 900
Boston, MA 02114

RE: Phase 1 Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project: EOEA No. 11865

Dear Secretary Durand:

The Metropolitan District Commission (MDC) is supportive of the Muddy River Flood Control Water Quality, Habitat Enhancement and Historic Preservation Project, "The Project". The Project objectives of providing flood control, improving water quality, restoring landscape and historic resources, enhancing the aquatic/riparian habitat and instituting best management practices in the Muddy River system are laudable and important.

MDC wants to be formally included in organizing the management structure to oversee the implementation of the maintenance plan and will work with the proponents and other environmental agencies to make a commitment towards the coordination of the management, maintenance and operations of "The Project." S-1

Sincerely,

Samantha Overton Bussell
Deputy Commissioner

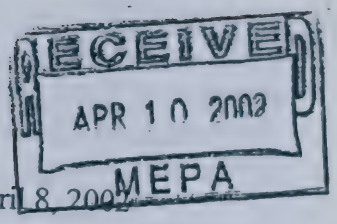
CC: Betsy Shure Gross, Executive Office of Environmental Affairs
Erin Chute, Brookline Director of Parks and Open Space
Tom Brady, Brookline Conservation Commission
John Burckardt, Parsons Brinckerhoff, Inc., c/o Boston Parks and Recreation Department
Margaret Dyson, Director of Historic Parks, Boston Parks Department

T

AP

CRWA

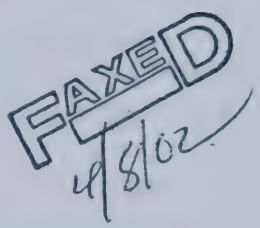
Charles River Watershed Association



BY FAX AND MAIL

April 8, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street
Boston MA 02114



Attn: Arthur Pugsley
MEPA Unit

Re: Draft Environmental Impact Report, Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project, EOEA #11865

Dear Secretary Durand:

Charles River Watershed Association (CRWA) has reviewed the Draft Environmental Impact Report (DEIR) for Phase I of the Muddy River Restoration Project and submits the following comments. CRWA has been involved in issues surrounding the Muddy River for a number of years and is a member of the Citizen's Advisory Committee (CAC) for this project. We support this complex project -- anticipated to span 15 years -- that will provide flood control, improve water quality, enhance aquatic and riparian habitat, and restore the historic landscape of the Emerald Necklace.

The special review process adopted for this project and the creation of a CAC have been effective vehicles for public review of this project. They have brought together stakeholders with disparate views. We believe that there is broad consensus and support for the project conceptually. We do, however, have a number of concerns about the project's implementation, including stormwater management and operation and maintenance issues, that should be addressed in the FEIR. CRWA has signed onto the CAC comment letter on the DEIR because we support much of what it says, but we feel that some significant issues remain to be resolved in order to avoid or minimize damage to the environment to the greatest extent feasible.

Dredging

The FEIR should include detailed measures for the bank-to-bank dredging to prevent downstream sediment transport. Silt curtains alone are not effective for many organic contaminants that are easily re-suspended. We are particularly concerned about breaches during wet weather events and increased turbidity from return water from the belt filter presses. At a minimum, the project should include the installation of curtains,

T-1

31 Commonwealth Avenue, Auburndale, Massachusetts 02466-1773, Telephone (617) 965-5975 Fax (617) 332-7465
Website: www.crwa.org Email: crwa@crwa.org

or a temporary filter weir, both further downstream and near the outlet to the Charles River, to prevent downstream turbidity and contamination. Water quality sampling and monitoring is critical during the dredging operations and a comprehensive plan should be included in the FEIR. It is also important to put in place measures to prevent dried sediments from becoming airborne. T-1 cont. T-2 T-3

Bank-to-bank dredging will severely affect the survival of fish and other vertebrate and invertebrate species. The proponents should detail in the FEIR how impacts will be mitigated. A relocation plan/permit to capture and release fish and other impacted wildlife should be obtained from the Massachusetts Department of Fisheries and Wildlife prior to any dredging. The project will require a state water quality certificate pursuant to § 401 of the federal Clean Water Act, and the FEIR should propose conditions for ensuring compliance with water quality standards during dredging activities and for the discharge of return water. Dredging should also be scheduled so that it does not interfere with the spawning season. T-4 T-5

A natural soil layer, as opposed to a clay layer, exists beneath the river sediments according to the DEIR. The FEIR should discuss how proper dredging depths (varying from 1 to 7 feet) were determined and how the natural soil layer will be protected. With respect to blueback herring, it should provide information about necessary sediment quality/depth to provide suitable spawning environment. T-6 T-7

Stormwater Best Management Practices

One of the stated project goals is to reduce annual sediment loads to the river by 30% over existing loads.[1] While this will certainly extend the time before "major"dredging is again needed, contaminants and sediments will still continue to degrade water quality. Because the project relies heavily on dredging as a solution, CRWA believes that every effort should be made to prevent and to control resedimentation. Given the high cost of this project and the stormwater control technologies and practices available, we believe stormwater management is essential to protecting the investment in this project. We do not believe that the DEIR has substantiated a future total suspended solids (TSS) removal rate of 30%. It is also unclear what proportion of the stormwater runoff will be treated by a particular BMP. According to DEP's Stormwater Management Policy (see attachment), street sweeping and deep sump/hooded catch basins respectively provide 10% and 25% removal of TSS. However, the DEIR should not claim full credit for these removals as these BMPs are already being applied by Boston and Brookline. The FEIR should clarify how the additional 30% removal will be achieved and the proportion of removal assigned to each type of BMP. T-8

A comprehensive alternatives analysis of stormwater management measures should be required in the FEIR with a full cost-benefit analysis provided for each T-9

[1] According to the DEIR at 2-95, ongoing BMPs have reduced sediment loads in the river in the past 30 years from an estimated 4,000 cubic yards to 2,5000 cubic yards today.

alternative. We are very concerned about the "treatment" controls proposed in the DEIR. Sedimentation basins in the *river*, as opposed to in Leverett and Willow Ponds, do not strike us as a structural "BMP." We agree with the Brookline Conservation Commission's comment that this approach "is even farther downstream than 'end-of-pipe.'" Classification of river overdredging as a BMP, would, we believe, set a bad precedent for other projects. We think it is inappropriate and misleading to classify this approach as a "treatment control." (DEIR at 2-107, 111).

It is absolutely essential that the proponents fully discuss and make a stronger case for in-stream sedimentation basins as opposed to other "structural" and non-structural stormwater controls in the FEIR. At a recent public meeting in Brookline, the proponents' consultant was unable to provide any information about past experience with these types of sedimentation basins. We note that, according to Table 5-9, $6.2 million, or 55% of the entire $11.25 million proposed as initial capital costs for structural stormwater BMPs, is attributable to the design and construction of eight in-stream basins at Back Bay Fens, Riverway, Leverett Pond, and Willow Pond, and for the additional resulting sediment disposal (18,855 cubic yards).

There are many questions about the use of in-stream sedimentation basins that must be answered in the FEIR. For example, where has overdredging and construction of in-stream basins proven to be an effective long-term BMP? What are the negative impacts over time to aquatic life? What are the water quality impacts? Does it really create a channel, or do soft sediments quickly collapse into the channel so that the overall sediments level out? How will the overdredging impact the natural soil layer? On what basis were these particular locations selected? What information is available to show that stormwater sediments will ultimately settle in the basins? How do the construction and maintenance costs compare to other structural BMPs? T-10

Furthermore, how often will these basins need to be maintained, what does the maintenance entail, and what are the incremental impacts? The DEIR talks about annual monitoring for sand bar formation and states that the basins will need to be dredged when they become ½ full. (DEIR at 8-33). The FEIR should provide estimates of the frequency of necessary "clean outs." How would maintenance dredging be performed and what type of equipment would be used? According to the DEIR at 8-43, the annual cost for BMP-related maintenance is $259,000, of which $96,000 is allotted for maintaining the sedimentation basins. The FEIR should discuss the assumptions on which this figure is based for "annual measurement of dredging accumulation and then the cost of removing the accumulated dredge material on a periodic basis." (DEIR at 8-43). In sum, much more data on in-stream sedimentation basins should be provided in the FEIR.

Other treatment BMPs proposed are a vegetated swale near the Victory Garden and four particle separators. The DEIR proposes a pilot project to evaluate the existing particle separators, because performance of these BMPs has been mixed in the past, and to evaluate other sites for water quality improvements. We think it is important to stress that the project should be used to determine where and how these devices should be T-11

installed and how often they should be cleaned, not whether they should be installed at all. CRWA has a lot of experience monitoring BMP inlet and outlet quality (including a Vortechs unit) to determine TSS removal efficiencies. It is our experience that removal efficiency decreases or even reverses (with outlet pollutant concentrations higher than inlet concentrations) when BMPs are not properly maintained. CRWA feels that the reasons for poor performance, such as inadequate maintenance, should be determined during the pilot project and corrected during wider application of the BMPs. T-11 CONT.

We urge that the pilot plan be scoped and the project implemented as quickly as possible so that the results are incorporated in the FEIR. The project offers a terrific opportunity to explore other methods of controlling stormwater, including cisterns and infiltration systems, and the pilot should also consider inclusion of demonstration projects employing innovative, less expensive approaches to stormwater control. The FEIR should also discuss the alternatives recommended by the Center For Watershed Protection in the Village Brook watershed in the context of the pilot plan and evaluate these alternatives in terms of engineering feasibility and cost. T-12

Source or site control, as recognized in the DEIR, is key for this project. Yet the Metropolitan District Commission (MDC) is a weak, but extremely important link, in the stormwater management system for the watershed. While the MDC uses 26 tons of salt and 6 tons of sand per mile on MDC-managed roads per year, street sweeping of MDC parkways in the project area is not conducted on a regular basis. According to the DEIR, parkways are swept a minimum of four times per year and sometimes more frequently; however, there is no formal schedule. The MDC also does not have a formal program of catch basin cleaning, nor does it maintain a database of catch basin cleaning. Many of its catch basins on the Riverway were found to be full of sediment and in poor structural shape. Additionally, roadway drainage from the MDC parkways overflows the curb and erodes the slope in the parkland, causing sedimentation in the river. Repairs to the drainage system, pavement, and foundation are necessary. It is clear that the MDC must be required to maintain source control BMPs on a regular basis and to develop a plan for this maintenance. As discussed further below, while the MDC is not a project proponent, the magnitude and expense of the project and the benefits that will accrue to the watershed and to the metropolitan park system -- in addition to EPA's Phase II stormwater regulations -- dictate that the MDC begin to meet its stormwater management obligations. CRWA believes that it is time to bring the MDC into the discussion and to require a commitment by it to effective stormwater management. Absent such a commitment by the MDC Commissioner, there is little incentive to advocate for increased legislative funding for BMPs. T-13

As you stated in the ENF Certificate, the EIR should contain "a commitment to a detailed schedule, including an ongoing annual schedule, of best management practices to create and maintain high quality stormwater runoff, which will benefit both water quality and prevention of sedimentation. It should describe ongoing measures to prevent the recurrence of invasive vegetation that has been removed." We think the language of the maintenance section regarding the responsibilities of each proponent for stormwater measures going forward should be very specific in the EIR and there should be a written T-14

commitment by both entities to carry out these responsibilities. Funding sources for ongoing, long-term implementation of the stormwater maintenance plan, as you requested in the ENF, must also be discussed. T-15

It appears that certain non-structural BMPs are underfunded in Table 8-9, the summary of O and M costs for watershed BMPs. For instance, the proposed $5000 per year for a public education program for Boston, Brookline and the MDC combined seems far too little and the proponents should discuss how this figure was determined. T-16
Similarly, $1000 per year for waterfowl control split between Boston and Brookline control seems quite low. T-17

Management and Maintenance

The DEIR discusses various management options for the parkland. However, no one option is recommended. While admittedly a management structure may evolve over time, it seems to us that a preferred management alternative should be selected in the FEIR and discussed in detail. T-18

We note that the DEIR concludes that an additional 13.8 full time employees are necessary to effectively maintain the parkland. Additionally, monitoring and careful control of invasive plant species will need to be conducted since, as recognized in the DEIR, allowing even a small amount of invasive plants "to regenerate will mean desirable plantings will quickly be invaded and overwhelmed by these species." (DEIR at 8-40). The need for a strong management and maintenance program to protect this large investment and invaluable resource cannot be overstated. T-19

Just as Boston and Brookline signed an MOU in 1999 concerning a number of project issues, so too should they be required to commit in writing to their maintenance responsibilities as a precondition to state funding being provided for Phase I of the project. T-20

Similarly, while MDC is not a project proponent, it is responsible for 19% of the project area. According to the DEIR, MDC currently does not perform any preservation or repair work. Its maintenance activities in the Charlesgate portion of the park consist of mowing, leaf raking, and litter removal.

The Charlesgate portion of the project, estimated at $1.9 million, is being funded by federal, state, and local monies. We believe that the MDC needs to now make a clear commitment to maintain the parkland and parkways under its jurisdiction in the project area. This commitment must necessarily include the institution and maintenance of stormwater BMPs on a regular basis and at an appropriate frequency. A Memorandum of Understanding (MOU) executed by the MDC acknowledging its responsibilities and detailing its maintenance plan would help to ensure that the MDC is committed to and will give ongoing priority to the maintenance necessary to protect the public investment in this project. The need for a commitment by MDC cannot be overstressed. T-13 CONT.

Maintenance in Perspective

The Muddy River basin is home to a number of institutions that are undergoing expansion. The project should address surrounding development and the impacts these expansion projects will have on the river, the parkland, and parkways. Major expansions are planned for the Museum of Fine Arts, the Joslin Diabetes Center, and Brigham & Women's Hospital that will add over 10,000 vehicle trips per day to the area. These projects also present challenges for control of stormwater runoff. The proponents must work closely with these developers to insure that stormwater impacts to the river are reduced to the maximum extent practicable. T-21

Monitoring

Lastly, water quality monitoring is an important component of this project. CRWA believes that the monitoring program should be bolstered by testing for additional categories of contaminants -- particularly oil and grease since the Muddy River parallels the MDC parkways and is adjacent to Industrial Island in Brookline. Having conducted the preliminary monitoring for this project in 1999, CRWA is willing to provide technical assistance for the implementation of the monitoring program. T-22

CRWA looks forward to reviewing the FEIR and appreciates this opportunity to comment on the DEIR.

Sincerely,

Margaret Van Deusen
Deputy Director and General Counsel

Dudley Bonsal
Environmental Scientist

Enc.

cc: Betsy Shure Gross, Executive Office of Environmental Affairs
Jay Wickersham, Executive Office of Environmental Affairs
Samantha Overton Bussel, Metropolitan District Commission
Stan Ivan, Boston Parks and Recreation Department
Tim Famulare, Boston Conservation Commission
John Sullivan, Boston Water and Sewer Commission
Erin Chute, Brookline Director of Parks and Open Space
Tom Brady, Brookline Conservation Commission
John Burckardt, Parsons Brinckerhoff, Inc., c/o Boston Parks and Recreation Department
Bruce Conklin, Camp, Dresser and McKee, Inc.

Attachment

Excerpt from:
Stormwater Management
Volume One: Stormwater Policy Handbook
March 1997

Prepared by:
Massachusetts Department of Environmental Protection
Massachusetts Office of Coastal Zone Management

TSS Removal Rates (adapted from Schueler, 1996 & EPA, 1993)

BMP List	Design Rate	Range of Average TSS Removal Rates	Brief Design Requirements
Extended Detention Pond	70%	60-80%	Sediment forebay
Wet Pond (a)	70%	60-80%	Sediment forebay.
Constructed Wetland (b)	80%	65-80%	Designed to infiltrate or retain.
Water Quality Swale	70%	60-80%	Designed to infiltrate or retain.
Infiltration Trench	80%	75-80%	Pretreatment critical.
Infiltration Basin	80%	75-80% (predicted)	Pretreatment critical.
Dry Well	80%	80% (predicted)	Rooftop runoff (uncontaminated only)
Sand Filter (c)	80%	80%	Pretreatment.
Organic Filter (d)	80%	80%	Pretreatment.
Water Quality Inlet	25%	15-35% w/ cleanout	Off-line only; 0.1" minimum Water Quality Volume (WQV) storage
Sediment Trap (Forebay)	25%	25% w/ cleanout	Storm flows for 2 year event must not cause erosion; 0.1" minimum WQV storage
Drainage Channel	25%	25%	Check dams; non-erosive for 2 yr.
Deep Sump and Hooded Catch Basin	25%	25% w/ cleanout	Deep sump general rule = 4 x pipe diameter or 4.0' for pipes 18" or less.
Street Sweeping	10%	10%	Discretionary non-structural credit. must be part of approved plan.

Notes:

(a) Includes wet extended detention ponds, wet ponds, multiple pond designs.
(b) Includes shallow marsh, extended detention wetlands, pocket wetland, and pond/wetland designs.
(c) Includes surface, underground, pocket, and perimeter designs.
(d) Includes compost, peat/sand, and bio/filtration designs.

Land Uses with Higher Potential Pollutant Loads (Standard 5)

Residential, office, and institutional development and roads normally will not yield high potential pollutant loads. However, certain land uses generate higher concentrations of pollutants than found in typical runoff, based

THE EMERALD NECKLACE
Conservancy

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April 6, 2002

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EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS

Secretary Bob Durand
MA Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

RE: **Draft Environmental Impact Report EOEA #11865**
Emerald Necklace Environmental Improvements Master Plan and Phase I
Muddy River Flood Control, Water Quality and Habitat Enhancement, and
Historic Preservation Project

Dear Secretary Durand:

On behalf of The Emerald Necklace Conservancy, a non-profit organization and public-private partnership dedicated to the renewal of Olmsted's Emerald Necklace, I am writing to you relative to the DEIR for the above project. The Conservancy brings together over 300 supporters from government, business, institutions and community-based organizations, area residents, and park and environmental advocates in support of our mission: to restore, maintain, preserve and promote the six parks -- along with waterways and structures -- stretching from the Back Bay Fens/Charles River to Franklin Park.

Our work program over the past five years has had as its major focus the restoration of the Muddy River as well as the historic landscape, and implementation of a flood control program for the River. Without attention to these Emerald Necklace waterways and flood mitigation, our long-term goal of landscape restoration and development of an on-going maintenance program for the park system cannot be achieved. Equally important, public sector investment in this phase of the Necklace's restoration will lead to major private sector (corporate, foundation and individual) investment in the park system.

We want to make several key comments upfront relative to the Muddy River Restoration Project and the DEIR:

(1) The Conservancy supports, without reservation, the Muddy River Restoration Project "Preferred Plan" and the project goals as stated. The Project's proponents have worked hard to get to this point and we applaud their commitment to the Olmsted legacy.

(2) We strongly support the Charlesgate portion of the Project moving forward in 2002, and ask that you and the environmental agencies and historic commissions reviewing the project ensure that this happens.

In no way should there be any limitations put on Charlesgate or the Muddy River Restoration Project moving forward as soon as possible. We cannot afford another $90+ million in property damages nor would it be wise to erode the current high level of public confidence that this project is going to happen. To do this would undermine the project; the broad range of coalitions built to move the project forward; and, the ability to engender continued confidence that restoration of the Emerald Necklace will take place as well as the funding support.

At the same time, we recognize that Charlesgate alone will not address the flooding issue, the restoration of the historic resource, improvement of riparian and aquatic habitat or the other Project goals. The entire Muddy River Restoration Project must move forward and be funded in the long-term. To do less is unacceptable.

(3) We support the DEIR as presented by the proponents as a first step in moving the Muddy River Restoration Project forward. While there are still unanswered questions relative to management, maintenance and funding -- all critical to the long-term restoration and on-going stewardship of the park system -- we recognize that resolving these concerns takes time and will require sensitive and complicated deliberations and discussions not only between two municipalities but also other stakeholders including, we hope, the Conservancy who intends to play a strong role in these deliberations as well as the Necklace's renewal.

The Muddy River Restoration Project is a complex engineering project and the range of issues discussed in the DEIR are equally complex to sort out after decades of disjointed management of this historic park system and deferred maintenance. The fact that these issues are not fully scoped in the DEIR (an interim report) may not be desirable but we are confident that these issues will be more fully scoped in the FEIR.

(4) We pledge our support and assistance in any way required to help move Phase I of the Muddy River Restoration Project forward and to get it publicly funded.

(5) We intend to work for the restoration (along with required funding) of not only the Necklace's waterparks but also the landscape and structures of the entire park system; the improvement of access to and through the parks; infrastructure improvements including signage; and other activities which will return the Olmsted design to its former beauty as well as ensure its on-going maintenance.

Following are our comments on the DEIR focusing on the engineering and construction, maintenance and management sections. While The Emerald Necklace Conservancy presents what we believe will lead to improvements in both a fully-scoped FEIR and the Project, in no way are these comments intended to deter you or others from approving the DEIR or enabling the Charlesgate portion of the Muddy River Restoration Project to move forward this year.

Project Engineering and Construction

There are a number of areas where the DEIR might be improved at the FEIR stage relative to engineering and construction-related concerns, as follows:

*Section 1 – Introduction: The flood analysis is well done. Since this issue is critical in the minds of many, it might be useful to show graphically the previous flood levels and the new ones as a result of project implementation. For example, 1-5, Figure 1-3 shows the extent of the 1996 flooding. It would be useful to see the same type of figure showing the level with each improvement that is made or this might be done in Section 5.24 (Flood Level Reductions). V-1

*Section 2 – Project Alternatives: The Conservancy supports the selected Alternative and believes that this section was well done.

*We believe that the DEIR has done a good job of exploring all viable alternatives relative to the disposal and treatment of excavated material. If there is a creative way to deal with toxics on- site and to save money without creating neighborhood-related concerns, we would recommend consideration of this. V-2

*Section 5: Riverway (Section 5.3) All along the Project, improvements will increase the velocity of flood flows. Scour at bridges is a concern that has evolved since Olmsted's days. Have scour studies been done to ensure that existing bridges are not harmed? V-3

*Constructability reviews at the present level of design and other intermediate stages should be done by construction professionals. These should include contractors relative to: dredging, landscape, material handling/rehandling and a heavy construction contractor who has worked underground in an urban area which will be especially useful for the Brookline Avenue and Park Drive area of the Project. V-4

*Charlesgate (Section 5): The Preliminary Design Report for Charlesgate should be consistent with the description, contractor requirements and commitments made in the DEIR; for example City of Boston noise regulations are not mandated in the Report. V-5

*The DEIR has the routing of trucking for Charlesgate work to I-93 at Massachusetts Avenue. Access to the westbound ramp of the MA Turnpike (at Mass. Avenue and Newbury Street) appears to be the best route for trucks taking RCRA and nonRCRA excavated material out of state or to the west. Have the proponents considered this option? V-6

*Staging and staging areas are well done. We would ask, however, that the proponents explore further creative solutions to construction in the Brookline Avenue area that will expedite construction and minimize impact to residents/ abutters and the traveling public. Have pipe-jacking or raised decks been considered, for example, that would maintain desired traffic patterns? V-7

*Basin-Wide BMPs (ES-19): These have been well defined and are critical to the long-term "useful life" of the project. However, there are too many "should's" in this section. We would hope that in the FEIR, these will become "will's." V-8

*There is much discussion about planting (Section 5.30 and 5.35) and the project proposes an estimate of $10 million of landscaping. Will these plants be readily available when needed? Should a grow and install contract be used? If the contractor is to maintain for two years, how about irrigation requirements for the short and long-term? V-9

*Environmental Mitigation (Section 7): Table 7-1 lists twenty-one impacts to be mitigated. The construction cost estimate in Table 5-10 does not list mitigation costs as a separate item. How have these costs been captured? The FEIR should list each mitigation and where the cost is included to ensure that these concerns are adequately accounted and provided for in Project costs. V-10

Related Concerns:

Contractor Performance Standards – Clear contractor performance standards should be incorporated into every contract (and reinforced by Project staff on an on-going basis, as required) and should include a discussion of the following: (a) contractor parking on-site (not in the parks unless in designated staging areas and not on sidewalks); (b) parking off-site (creative solutions are needed to ensure that parking is minimized in and around the Necklace and the historic resource is not further environmentally damaged); (c) reasonable hours of operation; (d) site cleanliness with well-defined trash pick-up and graffiti removal schedules, and the like. V-11

Public Communications – A well-defined and on-going public communication program about the project should be designed and implemented relative to the work going on or to be scheduled. Currently, there is no mention of the above, or related funding, in the DEIR. A project communications program should include:
(1) a "community liaison" position for the duration of the project with on-going access to all project personnel/contractors; i.e., a person who can correctly answer, in a timely manner, the questions of residents and other interested citizens relative to the Project and help make in-field corrections relative to mitigation issues such as noise, trash, etc.;
(2) clear and regularly-updated on-site signage/sign boards;
(3) regularly-scheduled community meetings, as required;
(4) a web-site to include timely information posted on the project and work taking place at any given time;
(5) a project "hot-line", whose number has been widely distributed, where concerns can be left by the general public to be answered by the "community liaison;" and,
(6) regular project updates and related work information sent to the print media and electronic media, especially the neighborhood press. V-12

Parks Management (Section 8)

Consistent with our mission, The Emerald Necklace Conservancy has paid close attention to the need for a long-term management and maintenance plan for the Emerald Necklace after completion of the restoration of the Muddy River and Emerald Necklace waterparks. We strongly endorse the inclusion of a section addressing this subject in the DEIR. As you know, the 1999 "Memorandum of Understanding" among the Commonwealth of Massachusetts, City of Boston and Town of Brookline required such a plan, recognizing the need to protect the substantial federal, state and municipal capital investments in the project by ensuring its long-term stewardship.

Three park agencies (Metropolitan District Commission and Boston and Brookline Parks Departments) – as well as five other state and municipal agencies have jurisdiction over defined areas of the Emerald Necklace. To serve Muddy River

Restoration Project goals, the complementary roles of these public agencies must be clearly defined and coordinated according to uniform standards.

As each of these public agencies is subject to budgetary fluctuation (the three parks-related agencies more than others), The Emerald Necklace Conservancy is deeply concerned about assuring both a unified management and maintenance structure and a steady funding stream necessary for the long-term stewardship of the park system including its landscape, waterways and structures. Section 8 of the DEIR is a helpful start in addressing these issues. In this comment letter, we clarify what the Conservancy envisions as its role in the Necklace's restoration and on-going maintenance, and make suggestions for further study of an optimum management structure to be included in the FEIR.

The Emerald Necklace Conservancy was formed to be the private sector partner for this historic park system. Though still a young organization, it fully expects to play a significant role in the park system's restoration and maintenance (including related and required major fundraising) and management, and has already developed cooperative working relationships in this regard with the parks' public sector stewards. In our view, this does not present an alternative to creating an appropriate management structure for the Necklace, as the DEIR suggests. Rather, it highlights the need for an effective management entity which can take maximum advantage of the Conservancy's potential contribution both to the park system's renewal in the Olmsted vision and to its on-going maintenance. Ideally, this management structure will allow the Conservancy's role to grow over time as our organization matures.

As the DEIR states, a public-private partnership can take many forms, depending on the respective roles of the public and private partners in setting policy for and implementing park maintenance; in providing funding; in hiring and/or supervising maintenance staff; and in contracting with third parties for park design, improvement and maintenance activities. New York's Central Park Conservancy and Prospect Park Alliance are important examples to learn from, and we ask that the proponents and their consultants collect additional information on the history and structure of these entities and the aspects of it which are, or are not, applicable for our park system to inform the discussions outlined above.

V-13

For instance, Central Park is under the jurisdiction of a single entity, the New York City Parks Department, which has contracted with the Conservancy for overall parks management, including maintenance and programming. This contractual arrangement has evolved over some twenty years. Central Park also has the advantage of significant concession revenue and significant private support from surrounding landowners, institutions, local and national corporations and foundadations and individuals of means. Perhaps other examples, such as the Fairmount

Park Commission and private non-profit "friends" groups in Philadelphia would be instructive, as well.

Of the alternative management structures studied in the DEIR, we believe that a new inter-agency entity formed under the Joint Powers Act may be the most promising. A Joint Powers Act entity would have all the advantages of a unified system for park management, without removing the park system from local control, since the existing parks agencies would all be constituent members of this new entity. A legislative charter could extend the term of the agency for more than five years and provide a funding mechanism or formula for contributions from the Commonwealth, the City of Boston, and the Town of Brookline.

This model raises several questions for further discussion among interested parties. Would this interagency entity hire its own park superintendent and contract separately with design and construction contractors? Would it have its own police force? Would it be subject to competitive bidding, civil service and related requirements? How would funding be assured from each of the constituent agencies? Would the non-park agencies (Massachusetts Turnpike Authority, Massachusetts Highway Department, Boston Water and Sewer Commission, and Boston and Brookline Public Works Departments) also be members of the interagency entity? We believe that this option should be studied in detail and informed by discussions among Emerald Necklace stakeholders, including the Conservancy. The results of these deliberations can then be reported on in the FEIR. V-14

With regard to other alternatives addressed in the DEIR, we believe that the continued maintenance of discreet geographic areas of the park by three existing park agencies under a cooperation agreement merits further study, although we have some reservations about this option. A cooperation agreement could provide for uniform maintenance standards and for coordination of activities. Park maintenance would still be Balkanized, however, and cooperation would depend upon the goodwill of each of the cooperating agencies. In addition, adequate funding for the park system's maintenance and operations would not be assured. V-15

While we strongly support the inclusion of appropriate conditions in local, state and federal permits, enforcement of such permit conditions is by its nature uneven, and we do not believe this will ensure an appropriate level of uniform, long-term parks maintenance. Accordingly, we ask that the proponents thoroughly investigate a strong cooperative management structure which can overcome these limitations. V-16

The Conservancy believes that the creation of a special park commission or authority with jurisdiction over the entire Emerald Necklace, though it would provide for a single entity with stewardship responsibilities, goes too far. Because

the park (unlike toll roads and port facilities) has no dedicated revenue stream, such a special authority would require its own annual appropriations at a time of constrained state and municipal budgets. We believe this option is unlikely to be supported by either municipality or to gain legislative support.

V-16 CONT.

Finally, we note the need to clarify the geographic reach of this management entity. The term "Emerald Necklace" is used most broadly to refer to the system of parks stretching from Boston Common and the Public Garden, along the Commonwealth Avenue Mall and connecting to the Olmsted-designed landscape from the Back Bay Fens to Franklin Park. The Conservancy's scope of concern is the six Olmsted-designed parks, in recognition of the strong "friends" organizations which already exist for the Common, Garden and Mall.

In addition, the Muddy River Restoration Project will affect only a portion of the Olmsted-designed park system – Back Bay Fens through Olmsted Park. The Arboretum has its own unique public-private partnership between Harvard University and the Boston Parks Department. Both it, Jamaica Park and Franklin Park are outside the Phase I Project area. Accordingly, the FEIR should address which parks would benefit from being subject to a unified management structure.

V-17

We ask that the proponents take immediate steps, with the hiring of an appropriately qualified consultant, if required, so that these management issues can be addressed without delaying the filing of the FEIR. We look forward to working with the proponents, their consultants, other public agencies and interested parties in further exploring the critical issues of the Emerald Necklace's management and maintenance.

Parks Maintenance (Section 8)

Overall, the Conservancy believes that the maintenance plan is detailed at an appropriate level for this stage -- sufficient to provide intent, direction and expectations for care of the restored resource. We assume that the next level of detail will occur once a restoration plan is developed. As noted in Section 8.5.3 (Closing the Gap), staff organization and maintenance needs and activities eventually need to be defined at the level of a Work Plan.

The Maintenance Plan should clearly state that the maintenance and management guidelines for this project area needs to be part of a larger plan for the entire Emerald Necklace park system. It should also clearly identify an overall maintenance standard that we should strive to achieve along with a "vision" for what we want to achieve -- for example, should the standard be the same level of care as the Arnold Arboretum's but with adjustments which recognize that the rest of the

V-18

Necklace's parks are more intensely used and are not utilized for the same high level of scientific research? V-18 CONT.

In terms of cooperative maintenance arrangements, volunteer work can only succeed with adequate supervision. Where that supervision comes from will depend on the nature of the proposed management structure.

Goals (8.1.1): This section outlines objectives but not goals. They are good objectives, but should follow goals which are the next level up, identifying the purposes of the plan, for instance:
*Establish a unified approach and standard of care to tie together the various jurisdictional areas of the project area in order to support the experience of one unified park; and,
*Support the health and visual quality of parkland and water improvements and investments through improved maintenance and management structures, policies and procedures. V-19

Maintenance Standards (8.4.1):
Turf Maintenance: Grass is a difficult crop to culture well, and requires a significant amount of maintenance to keep it in good condition, particularly where it gets intensive use. It has become standard practice at a good many other sites to subdivide and prioritize grass areas. If this is appropriate for the Necklace, it should be considered in order to support differential use areas, visual character and site conditions in order to gain maintenance efficiencies.

Primary areas would be high visibility, high use areas that would receive greater liming and fertilizing. Some areas might be able to support taller grass and, therefore, require less mowing. The species of grass used will also dictate mowing regimes. Fescues, for instance, can reduce the need for mowing and are hardier in the face of drought. V-20

Increased Planting (Table 8-5): These are very specific numbers. Is this table an estimate or based on a previous estimate (from the Master Plan)? V-21

Closing the Gap (8.5.3): Who will hire and oversee the position and role of a park coordinator? This needs to be addressed in the management structure discussion. Similarly, the recommendation for the "purchase of small electric or gas vehicles for park maintenance." Who purchases? Through a joint purchase agreement? V-22

Relative to the recommendation "develop a two-year, park-wide tree removal," program -- this needs a guiding plan. Presumably part of the restoration design or that combined with a woodlands management plan. V-23

Recommendations for additions of staff: are these additions [assuming the goal of 13.8 more staff members] or some percentage of this number to be supplemented by outside assistance from other government or private sources? U-24

Section 8.6.2, #6: Currently reads: "Also develop consistent replanting scheme to regularly replant from a list of historical and ecological importance." We recommend this be reworded to: "…from a list of historically, aesthetically and/or ecologically appropriate species." U-25

Funding (Section 10): The Conservancy recognizes that additional work is needed to ensure full funding of both Phase I and subsequent phases of the park system's restoration and long-term maintenance. However, we believe in the good faith efforts made, to date, of the proponents to move the Muddy River Restoration Project forward as well as the increased public investment in, and attention to, the Emerald Necklace since the 1980's.

We anticipate that Project funding questions will be more fully scoped in the FEIR. The Conservancy offers its assistance in the on-going process to ensure both full public sector funding of Phase I, and long-term public and private funding for the restoration and maintenance of the Olmsted-designed six-park system. U-26

Conclusion

The Emerald Necklace Conservancy enthusiastically supports the Muddy River Restoration Project. We ask that the Secretary find the DEIR adequate, and that more fully scoped information in the areas discussed above be set forth in the final EIR. We also ask the Secretary to find the Charlesgate section of the DEIR as adequate and enable the project to move forward in 2002.

We pledge our support to work with the proponents and others to help formulate a management structure and maintenance plan that will ensure that the Emerald Necklace (and its landscape, waterways and structures) is restored, managed, maintained and funded to a standard deserving of the Olmsted vision and its place as an invaluable environmental and cultural resource in our Commonwealth.

Sincerely,

Simone Auster

Simone Auster
Executive Director

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April 5, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
Attention: MEPA Office
Arthur Pugsley, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02144

Subject: Draft Environmental Impact Report; EOEA #11865
Phase I Muddy River Flood Control, Water Quality and
Habitat Enhancement, and Historic Preservation Project

Dear Secretary Durand:

We have received the Environmental Impact Report (EIR) on *Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project* (the "Project"). We understand that this will be the major EIR and that comments on subsequent phases not addressed in this EIR or in the proposed budget are appropriate at this time.

As Brookline Town Meeting Members from Precinct One–the location of the Carlton Street Footbridge–we wish to go on record to express our overwhelming opposition to the inclusion of Carlton Street Footbridge restoration as part of the longer term Project. The Carlton Street Footbridge (CSF) has been closed, derelict and unusable for 25 years. Our opposition to restoration reflects the position of over 200 immediate neighbors in the vicinity of the CSF, as well as 12 of 15 elected Town Meeting Members in the Precinct. Our opposition is based on standards affirmed by the *Emerald Necklace Master Plan*, the framework of the entire project.

1. **COST**. *The Emerald Necklace Master Plan* (ENMP) states that projects should be of **"reasonable cost"** and offer **"substantial public benefit** (p. 14)." At close to $1 million dollars, estimates for the CSF restoration far exceed any benefit to the Town. Based on observation and interviews of current park users, about 20 pedestrians might use the footbridge at peak times to enter Olmsted Park (Conley Associates Report to Brookline Selectmen). The customary entry at Longwood Station, 250 yards from the bridge, would continue to be the major entry into the Park in that area.

2. **HISTORICAL SIGNIFICANCE**. The historical argument for restoration rests on the assertion that the CSF is an integral part of Olmsted's vision of Riverway Park. Research by Olmsted scholars reveals the opposite. The entry point at Carlton Street in Olmsted's

1881 plan was already a well-used path to a Boston-Albany Railroad flag stop at grade level. Olmsted merely found it convenient to extend this path into his proposed park. The first indication of a footbridge appears 11 years later, at the request of a citizen of the Town as a safety measure. By the time the bridge design was chosen in 1894, Olmsted was no longer actively engaged in design or implementation of the Riverway Park project (Pressley Associates Report to Brookline Selectmen, page 14). It is clear that the CSF was built as an expedient solution created by others, and not an integral part of Olmsted's vision of the park. The CSF was given historical status as a contributing element not because of its form or function, but because it was built one year before the end of the arbitrarily designated time period of Olmsted's involvement in Riverway Park.

3. HANDICAPPED ACCESSIBILITY. The ENMP gives priority to projects that **"encourage design solutions...that provide for... handicapped accessibility** (page 3)" and "**access... with special regard... for those with special needs** (page 145)." Two successive feasibility studies commissioned by the Town (Ammann & Whitney and Conley Associates) stated that ADA compliance waivers would be needed as a condition for footbridge restoration. The reports concluded that the addition of ADA accessibility would destroy the footbridge's historicity (Ammann & Whitney, page 12). It is unlikely that these waivers can be obtained because there is no alternate accessibility within a reasonable distance, if at all. Since restoration of the footbridge without ADA accessibility is not possible because of compliance issues, the bridge restoration project finds itself caught between the assertion by some that it is historically significant, and the reality that it cannot be restored and retain any historical significance.

4. SECURITY AND SAFETY. A further ENMP priority is to "**...enhance public safety...** (page 3)." Neighbors near the footbridge overwhelmingly feel that safety and security are compromised by a restored footbridge, which would link the neighborhood directly to an unlit park without a residential community on the Boston side. This is supported by the Terrell Report to Brookline Selectmen, which states that crime ramps up as you move from Brookline through the park into the Boston side of Riverway Park. The report further states that people in the neighborhood would not feel safe walking in the neighborhood if the footbridge were opened. Moreover, Brookline police officers interviewed for the Terrell Report all variously identified Riverway Park as unsafe at night. Besides crime, a second issue of concern for public safety is the footbridge's location at a hazardous corner with reduced visibility, heavy with vehicular traffic in two directions. The Town should be uneasy about luring pedestrians to a footbridge at such a dangerous crossing.

For all the reasons stated above–excessive cost; doubtful historical significance; lack of handicapped accessibility; security and safety concerns–the Brookline community most affected by the CSF strongly believe that the CSF should not be included in the Project. V-1

The Project planning process required input from local communities through the Citizens Advisory Committee. However, the majority of the community adjacent to the CSF believe that their input was neither acknowledged by the Brookline members of the Citizens Advisory Committee, nor communicated to Project officials. As Brookline Town Meeting Members, we are grateful for this opportunity to make our community's position known.

Very truly yours,

Peter Ames

Michael Robbins

Melvin Clouse

John A. Schemmer

Steven Kanes

S. Parkman Shaw

Sandra Lawrence

John Weiter

Fredrick Lebow

Susan Williams

Karen Lieff

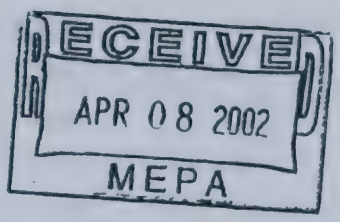
Pamela Zelnick

cc: Town of Brookline Selectmen:
Donna Kalikow, Chair, Robert Allen, Joseph Geller, Deborah Goldberg, Gilbert Hoy
Richard Kelliher, Town of Brookline
Thomas Brady, Town of Brookline

W
AP

To: Bob Durand, Secretary
Executive Office of Environmental Affairs, Attention: MEPA Office
[Arthur Pugsley], EOEA No. 11865
251 Causeway Street, Suite 900
Boston, MA 02114

From: Roger Frymire
22 Fairmont Avenue
Cambridge 02139-4423
617-492-0180
ramjet@alum.mit.edu



Date: April 8, 2002

R.E.: Phase 1 Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project

Sir –

I would very much like to see the flood control and environmental improvements proposed in this plan. However, I do not wish to see the money and effort here wasted by a continuance of the historic neglect of maintenance and actively destructive 'maintenance' foisted upon these public open-spaces by the Metropolitan District Commission (MDC).

These comments specifically address Table 2-2(7) of BMPs with which the MDC regularly fails to comply throughout its jurisdiction. Also specifically section 2.5.2.1 Catch Basin Cleaning where the MDC fails most egregiously in its lack of maintenance. W-1

Most of my observations are of MDC properties outside the scope of this project, but judging from comments seen in section 2.5.2.1 they are also endemic to your project area.

When the MDC attacks vegetation along the Charles river, a machine called a 'slope cutter' frequently gouges the bank – stripping vegetation down to bare dirt and forming new erosion channels. Most of the cut vegetation is left to rot in the river and can be seen in large rafts drifting downstream after such 'maintenance'. When grass is cut in areas near the water, most often the grass

and chopped trash blow directly into the river. Especially with no bank vegetation in place, anything not immediately blown into the water will wash there with the next rain. This rotting vegetation leads to lowered DO levels, reduced clarity, and rapid silting-in of the channel.

All along Memorial Drive, and in your project area also - based on the comments in section 2.5.2.1 - roadway and bridge drains DO NOT FUNCTION. Almost the entire length of this roadway floods with every rain. This leads to much road salt, sand, and water being splashed onto the parkland by heavy traffic. The overland flow of this water to the rivers kills vegetation near the roadway, and greatly increases erosion all along the riverbanks.

Last month I saw catch-basin cleaning and rebuilding just upstream of Harvard Square. Unfortunately, this was done simply to restore a smooth road surface, and the drainage there still did not function in our two most recent storms. Another $200,000 contract for catch basin work is now out to bid – Contract # P01-2101-C3A. This actually includes one catch basin on the Riverway. The contract calls for cleaning of clogged drain lines. However, the drains are almost all collapsed and un-cleanable. This stop-gap, expensive, contract maintenance will have to be repeated quite often as the water still does not drain. Water and ice damage to the road and catch basins will cause the repairs to fail very quickly. W-1 CONT.

Everyone knows that MDC bridges are falling apart. This is again largely due to a lack of maintenance causing drainage failures. Bridge construction is especially vulnerable to ice, salt, and water damage. The newest MDC bridge I know of – the Harvard Bridge where Massachusetts Avenue crosses the Charles River – is seeing rapid deterioration as an effect of maintenance failures. Two years ago, one year ago, and just two months ago I informed the MDC of this. However, the 'accepted' mode here is not to maintain anything, but instead to ignore problems until large capital-intensive projects can be justified.

Last month I photographed all the catch basins along the East side of the Harvard Bridge. I've put these 34 pictures onto a CD-ROM so you can see how little drainage remains functional on that span. Of the 34 basin grates, 11 were completely clogged. All but two were at least two-thirds clogged. Each of these grates has 36 square holes, and on the entire east side of the bridge, a total of 155 such holes were open – out of 1224 possible! Only 12% of the

design drainage capacity of the bridge is available! IF pipes further down are not also clogged! And even the grates and frames in which they are mounted are corroding rapidly. Standing water is evident atop several of these drain structures.

Either remove maintenance responsibilities to another entity at least minimally capable, or I must suggest that your entire project is doomed to rapid deterioration and failure.

W-1 CONT.

We can't afford to repeat this project every 20 years.

Thank you for your attention to these points.

Sincerely,
Roger Frymire

One attachment. (CD-ROM with .jpg photographs)

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office

ANE SWIFT
overnor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

FAXED
4/8/02

April 8, 2002

Bob Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114
Attn: MEPA Unit

RE: EOEA #11865, Draft Environmental Impact Report

Dear Secretary Durand:

The Department of Environmental Protection (DEP) has reviewed the Draft Environmental Impact Report (DEIR) submitted jointly by the Boston Parks and Recreation Department and the Brookline Department of Public Works for the Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project (EOEA #11865). This letter is intended to convey DEP's consolidated comments.

The Department continues to support efforts to improve and restore the Muddy River and its surrounding landscape. DEP staff members have provided many hours of consultation and review to the proponents and their consultants over the past three years, in a variety of venues. Many of the comments contained in this letter have been discussed in those meetings or were contained in DEP's comments on the ENF. As discussed more specifically below, the Department is not satisfied with the DEIR's response to a number of our concerns and we are requesting additional discussion of some issues in the FEIR. This comment letter is divided into the major sub-headings of issues that fall under DEP's jurisdiction or oversight, these being: (1) Wetlands Protection Act (WPA); 2) 401 Water Quality Certification; 3) Dredging and Sediment Management; and 4) Stormwater Management and Pollution Control. In addition, there is a discussion of issues under the heading of Alternatives and Contingency Planning, followed by some miscellaneous comments.

Wetlands Protection Act

Procedural Issues

As proposed, a least a portion of the project is likely to require a Wetlands Variance. This possiblity was acknowledged by the proponents in the ENF. However, the DEIR does not address the Variance issue except with regard to rare species. The DEIR assumes that the entire project qualifies as a limited project under 310 CMR 10.53(4), which states, in part: *"...the issuing authority may issue an Order for projects which will improve the natural capacity of a resource area(s)...Such projects include, but are not limited to, the removal of aquatic nuisance vegetation and the thinning or planting of vegetation to improve habitat value."* In DEP's opinion, this provision does not apply to the entire project and a Variance will be required for some portions of the project.

In Charlesgate and the Back Bay Fens, the dredging of the channel and the removal of invasive plant species (primarily *Phragmites*) are likely to qualify for limited project status due to the documented need to improve flood control capacity in these segments of the River. Dredging in these areas will result in an enhancement of the natural flood storage function of the wetlands. However, the proposed "bank-to-bank" dredging in the Riverway and upstream areas is proposed in order to recreate the historic landscape but is not necessary for flood control nor intended to enhance the functions of existing wetland resource areas.

In the Riverway and upstream areas, the DEIR makes an assumption that dredging of sediments, widening and deepening the stream channel and the removal of invasive plant species will enhance the ability of the wetlands to protect the interests of the Act, under 10.53(4). However, only the function of wildlife habitat is discussed in any detail. According to the logic used in the DEIR, wildlife habitat would improve as water quality improves, and the planting of vegetation other than Phragmites would provide an added benefit to wildlife. While wildlife habitat may improve as a result of the dredging and invasives removal, it is DEP's experience that water quality improvements do not necessarily result in an enhancement of wetland functions. The DEIR appears to ignore any of the values that are provided by the Phragmites. Although Phragmites is a mono-culture and an invasive plant, it currently provides wildlife habitat, nutrient uptake and removal of pollutants; slows storm flows to allow solids to drop out and helps prevent the transport of sediments. The DEIR does not provide any analysis of how the proposed project will enhance wetland functions above and beyond what currently exists. As a result, this portion of the project will require a variance of the wetland regulations. As required by 310 CMR 10.05(10), a variance request will only be approved if the project proponent can demonstrate that the project: 1) will serve an overriding local, regional, or national public interest; 2) that there are no other reasonable alternatives to the proposed project; and 3) that mitigating measures are proposed to protect wetland interests. See this Department's ENF comments on this project for a more extensive commentary on the requirements for a wetland variance. X-1

While most of the dredging in the Back Bay Fens appears to meet the limited project standard in 10.53(4), there are four areas in the Back Bay segment of the River that are proposed to be "over-dredged." In effect, these over-dredged areas constitute in-stream stormwater detention basins and are not permitted under the WPA without a Variance that discusses possible alternatives. In DEP's opinion, the design and intent of the "over-dredge" portion of the project does not meet wetland regulation performance standards and will also require a wetland variance. X-2

Wetland Alteration and Replication

1. In Section 6, the DEIR lists the square footage or acreage of impacts in each of the River's project segments. In the Back Bay Fens there will be an overall increase in the amount of BVW acreage by 0.4 acres. The amount of Land Under Water (LUW) will also increase by 1.8 acres. The locations where these increases will take place should be shown on a plan and described in a narrative. X-3

2. In Ward's Pond, there will be a loss of 0.2 acres of BVW and an increase in the linear extent of Bank, but there is no narrative describing the reasons for the loss or gain. DEP tends to agree that overall the project will probably not result in a net loss of wetlands, but more detail is needed to show that replication/restoration is being provided on a one-to-one basis. X-4

3. In areas where culverts are proposed to be daylighted, the project proposes to create BVW along the new streams. This wetland replication is not described or quantified. The FEIR should provide additional details about BVW alteration and replication, including locations where BVW will be permanently lost and the locations where wetlands are proposed to be replicated (or restored, if any is proposed). X-5

4. In Section 5, the DEIR states that after Phragmites are removed, shore areas will be refilled with soil to establish a shelf on which wetland species will be planted. The FEIR should describe the type of soil to be used and how the shelves will be stabilized prior to the establishment of the plants. X-6

Invasives Removal

5. Phragmites removal is proposed to be performed with a barge-mounted machine or "other equivalent methods." The FEIR should specify what the other methods might be. Also, an explanation about why a barge-mounted machine was selected as the preferred method should be included. DEP has some concerns about the practicality of a barge mounted machine, given the low flows of the River. If different methods are proposed for different areas, these should be described. X-7

6. The DEIR (Section 6.2.2.5) states that other invasive species (purple loosestrife, common reed, buckthorn) will be removed and refers to Section 5 for details. DEP could not find any details about how these species would be removed. X-8

401 Water Quality Certification

7. Throughout the document there is minimal discussion of the State's 401 Water Quality Certification permitting activity. The reader is left with the mistaken impression that this permitting activity is an inconsequential activity. In reality, the WQC will be a major state permitting action. The Final EIR should correct this impression, and discuss in more detail the project elements which will be within the WQC jurisdiction. X-9

8. It appears that a proposed element of the stormwater treatment program includes overdredging to deepen a channel, thereby creating a basin where suspended sediment can settle out. This is proposed in six (6) locations, four in Back Bay and 2 in the Riverway. The applicant should be aware that the regulations governing 401 Water Quality Certifications, 314

CMR 9.00, state: *"No discharge of dredged or fill material is permitted for the impoundment or detenion of stormwater for purposes of controlling sedimentation or other polluant attenuation. Discharge of dredged or fill material may be permitted to manage stormwater for flood control purposes only where there is no practicable alternative and provided that best management practices are implemented to prevent sedimentation or other pollution."* The proponent has identified the basins as a means of stormwater treatment, not an element of the flood control program, and as such the basins will not be permittable absent a demonstration that all other alternatives have been evaluated and a showing that no other practicable alternative exists. X-10

The creation of deep basins within a waterbody allows sediment and organic detritus to accumulate within them and can alter the normal water flow. This combination of factors may lead to the development of anoxic conditions within the basin; thereby rendering the river bottom inhospitable to benthic organisms as well as organisms that have a benthic phase. Even if the basin is regularly maintained, so that anoxic conditions never develop, the very act of maintenance will destroy any existing benthic community. Given the extensive footprint of the proposed overdredge areas, the negative biological impacts resulting from their creation could be significant. X-11

9. The proposed generic mixing zone, proposed for construction-related water quality monitoring, 500-feet downstream of the work zone seems excessive. A site-specific approach to defining mixing zones that takes into account the proximity of sensitive receptors, point-source discharges, eroding banks, etc. may provide better water quality and environmental protection while aiding in the development of realistic water quality standards for the project. X-12

10. The proposed suspended solids limit of 200 percent of background within 200 feet of dredging during dredging and removal of debris also seems excessive, particularly if hydraulic dredging is employed. A lower limit will likely be imposed by DEP. It is unclear how background will be determined. Is background defined as the amount of suspended solids measured at the reference site while dredging is going on or will it be derived from historical sampling and analysis? The Department prefers an approach entailing real-time measurement of turbidity at the up-stream reference location, which would be used to develop the turbidity limit to be imposed at the downstream edge of the mixing zone. This issue should be discussed further in the EIR. X-13

11. There is a substantial amount of water quality monitoring proposed and a few water quality standards offered, but the DEIR fails to identify and link corrective actions to exceedances of a standard. Any exceedance of a project water quality standard will require some action on the part of the proponent, or their contractor, to bring the activities into compliance. The FEIR should outline these actions. Similarly, no criteria for defining an exceedance of a standard were included in the DEIR, e.g., would be single exceedance of a 200-percent of background suspended solid standard constitute a violation? X-14

12. The Department suggests that the allowable total suspended solids concentration (TSS) or turbidity in the water to be returned to the river should be linked to the reference location TSS or turbidity rather than the proposed blanket 50 mg/L and maximum daily limit of 100 mg/L. X-15

13. Individuals hired to capture and release the Three-Spine Sticklebacks will have to possess the appropriate certification, license and/or permit. X-16

14. The Department recommends that an effort be made to capture and release any fish or amphibians impounded within the work area when the silt curtains are deployed. A permit, issued by the Massachusetts Division of Fisheries and Wildlife, may be required for this activity. X-17

15. In Section 9.1.3, page 9-6 & Section 9.2.2.2, page 9-11, the discussion relative to WQC requirements needs to be significantly expanded in the FEIR to clearly indicate the breadth of the project activities that the WQC will permit/regulate. X-18

Dredging and Sediment Management

16. If the return water from the belt filter press operation is to be discharged back into the Muddy River, the proponent will need to specifically address the concerns relative to aquatic "polymer toxicity" from the backdraining of the belt-filter pressate. On page 2-41 the report indicates that a low charge cationic polymer that is non-toxic to aquatic organisms will be used. This type of polymer was used at Hardy Pond in Waltham and it is DEP's understanding that the same or equal polymer to be used in contract specifications, and that the specifications will require the contractor to submit Material Safety Data Sheets for the polymers, and further that the proponents' risk assessor will review the data for toxicity to the aquatic environment. X-19

17. DEP assumes that the contractor will need to perform some type of pre-dredge "debris-field" clearance. Based on discussions with the proponents' consultants, it is DEP's understanding that the specifications will indicate that debris is anticipated and it is the contractor's responsibility to remove the debris as well as the sediment. It will therefore be up to the contractor whether a pre-clearance activity is conducted or not. X-20

Sediment Classification and Management

18. In various portions of the document, including Construction Specs Section 02120, "Transportation and Disposal of Contaminated Material," there is a schematic of the generic Staging Area (with associated text in the document). It is unclear from the documents whether the proponent still intends to treat TC-Lead material at the Staging Areas and if they do, where the facility will be sited. (It could take-up a considerable area to provide for the "treatment in tanks/containers" and storage at the site to allow for receipt of confirmation sampling results that material is no longer a hazardous waste, etc.). X-21

a) Based on discussions with the proponents' consultant (CDM), it is DEP's understanding that TC-Lead is still intended to occur at the Agassiz or Lagoon Staging areas since these are the only two staging areas adjacent to the TC-Lead sediment area. Page 2-43 of the DEIR notes TC treatment in roll-off boxes. If DEP approves using both areas (they are only about 200 yards apart), then dewatering would occur at Agassiz Road and storage at the Lagoon staging area. This would provide 4 days of storage for testing at full production rates. If only one area is authorized, the Lagoon Area would be used for dewatering and storage and the production rate would be reduced. DEP will work with the consultant to flesh out this issue in greater detail so that a final plan can be incorporated into the FEIR. X-22

b) It is unclear whether the proponent still intends to "lime-stabilize" the sediment to deal with Sulfide Reactivity, odor control and possible need for pathogen reduction. DEP is concerned about where and how these facilities will be located and integrated into the flow schematic. Based on a recent discussion with the proponents' consultants, it is DEP's understanding that if lime is needed it would be added in the chemical addition stage as a slurry before passing X-23

through the belt press. As with the prior issue, DEP will work with the proponent to better develop this issue. X-23 CONT.

c) There may be a need to have an area set-aside to perform post-dewatering sampling if required by a receiving facility and/or an "unusual" batch of material is found that would require segregation/sampling. Based on discussions with the proponents' consultants, it is DEP's understanding that they do not anticipate typical operation to include post-dewatering sampling. For an "unusual" batch, they would expect to revert to the same operation as the TC-Lead issue by using containers for isolated incidents. This issue should be described in the FEIR and then discussed in detail when reuse/disposal sites are specified. X-24

19. In various sections of document when discussing the physical/biological aspects of the sediment, the report refers to the DEP lined and unlined landfill reuse levels. Those criteria are not relevant to assessment of biological impacts of in-place sediment. It would be more relevant to refer to other criteria such as developed by "Long, et al." (Effects Range Low [ERL] and Effects Range Medium [ERM]). X-25

20. The proponents' consultants have indicated that the DEP landfill reuse levels were identified since the sediments were anticipated to be removed and disposed and these levels would be relevant; and that the biological impacts of the sediments were not separately identified since they did not anticipate that this information could be used to justify sediment removal even if there were biological impacts. It is DEP's understanding that the Army Corps of Engineers (ACOE) is using biological impacts for dredging justification, but a draft of that report is not yet available. This issue should at least be referenced in the FEIR, using the information from ACOE report. X-26

21. On page 2-43 the text is confusing relative to DEP's Policy COMM-97-001 and the use of contaminant criteria in Table 1 of that Policy, indicated on page 2-43. These criteria are strictly for reuse of material at either lined or unlined landfills, whereby, if material is below the threshold critiera no specific DEP review/approval is required. This does not mean that material with higher contaminant levels cannot go to a specific landfill for reuse but simply indicates that specific DEP approval is required. X-27

22. After each of the Staging Areas is returned to its prior use, what type of site sampling/ decontamination might be necessary? DEP is concerned relative to direct access and park usage, particularly with the Charlesgate Staging Area that will be used twice and the statement on page 5-9 that the "... final rehabilitation...will begin when the contractor vacates the area for the last time." X-28

23. Page 5-17 discusses daylighting areas to be excavated. DEP assumes some type of soil sampling/characterization/management will need to be incorporated into the project. X-29

24. Section 7.2.1, page 7-5 states that, "The sediments to be dredged have been characterized to determine appropriate management activities for their removal from the Muddy River...." In general DEP concurs that the sediment has been characterized, but is not convinced that this will allow the material to be "classified" relative to approval to go to a specific management facility. DEP believes that it is likely that at least some post-dredging/dewatering sampling will be necessary and suggests that the plan consider this in Staging Area development/layout and material processing planning. X-30

25. Appendix F, Sediment Characterization: A general comment is that the report often uses the term "disposal" to refer to the general "management" of sediments, including "reuse." This may seem like a minor issue but it directly impacts the approval pathways and potentially the overall permittability of an option (e.g. DEP Policy COMM-07-001). This should be kept in mind as the Final EIR is prepared. X-31

26. Reuse/disposal facilities: This is not critical at this time, but at some point the proponents should discuss the actual reuse/disposal sites/facilities that the project and/or its contractors are seriously considering using, as it could directly impact certain project activities (e.g. need for post-dewatering sampling). Based on discussions with the proponents' consultants, it is DEP's understanding that they have identified several facilities that can take dewatered material without additional sampling of the dewatered material based on an LSP opinion of the in-situ testing. It is their intention, at this point, to limit the contractor's ability to store dewatered material on site so that a landfill willing to take material based on in-situ sampling must be selected. The contractor's submittals of proposed landfills would be reviewed before allowing them to proceed. X-32

Stormwater Management and Pollution Control

27. DEP is concerned about the various comments throughout the document (e.g. page 2-100) relative to the current lack of adequate maintenance by MDC for their facilities and how this will be resolved for future actions, particularly since the MDC is not a project proponent or signatory of the MOA. The proponents are not in the position of committing resources for an agency not part of the proponent group. Therefore, the proponents can only make recommendations as to the consistent level of park maintenance and BMPs that should be implemented throughout the project area regardless of jurisdiction. It is DEP's understanding that the MDC has met, and is working with, the proponents and has participated in the discussions about the proposed levels of park and BMP maintenance. The DEIR recommends that funding be found to provide the consistent level of park and BMP maintenance for those areas controlled by the MDC. This issue should be discussed in more detail in the FEIR. X-33

The Maintenance Plan should include a mechanism whereby some percentage of funds available for each phase of the project should be set aside (for use by the cities and/or MDC/Successor) for maintenance and/or sediment source controls (e.g. maintenance of stormwater BMPs, including catch basin cleaning). X-34

28. On page ES-31 there is reference to the Memorandum of Agreement (MOA) commitment to proponent funding of maintenance activities. The proponent has agreed to provide DEP with a copy of the MOA. Adequate maintenance activities will be critical to the long-term success of the project.

29. Based on discussions with the proponents, it is DEP's understanding that through an as-yet-to-be-selected management structure responsibility will be shared. This issue should be addressed in greater detail in the FEIR. X-35

30. The FEIR should clarify the intent of the text in section 8.2.2, page 8-9, and Figure 8-2 as it relates to DEP's responsibility to ensure requirements of the MEPA Certification. X-36

31. A two-year guarantee for success of plantings is being required by the proponents. DEP routinely requires a five-year monitoring period for wetland replication projects of this scale through the Water Quality Certification and WPA Variance. This apparent inconsistency should be addressed in the FEIR. X-37

Alternatives and Contingency Planning

32. The DEIR does not discuss alternative phasing or a reduced project scope if funding is not forth-coming. It is also not clear how long the work in Charlesgate ($7 million) would last if the $80 million upstream work was not implemented within a short period of time after the Charlesgate work is completed. A discussion of options should be part of the FEIR. X-38

33. Back Bay Fens – Section 5. The alternatives analysis in Section 2 states that "partial" dredging of Back Bay Fens would partially achieve the objective of flood control. A 30-foot wide channel from the Sears parking lot to Ipswich Street is needed. Upstream of the lagoon area, the DEIR seems to imply that the minimum channel width is the entire channel, bank-to-bank. The FEIR should clarify which areas are being dredged Bank-to-Bank and which are being "partially" dredged. The term "partially" should be defined in terms of the width of the channel. X-39

34. Section 6.3 The DEIR states that Bank-to-Bank dredging is needed in the Riverway in order to avoid compromising the flood capacity of the downstream Back Bay Fens. This does not make sense. It then goes on to say that Phragmite removal is needed to eliminate flow restrictions and prevent downstream migration of sediment. It is DEP's experience that phragmite would help prevent sediment migration. X-40

35. On page 3-7, the DEIR raises the notion that Phragmites removal alone could provide wetland enhancement, assuming other valuable wetland species were planted, without the Bank-to-Bank dredging option. This leads to another possible alternative project scope, and supports DEP's position that bank-to-bank dredging in the Riverway and upstream areas requires a Variance.

36. It appears that the Additional Hydraulic Analysis (Appendiz E), incorporating the 6 culvert/daylighting activities, shows that with the "replacement of critical culverts and dredging primarily located downstream in the Charlesgate area and the Back Bay Fens," significant benefits will also occur in the upstream areas. This again raises the question about whether there is a significantly less costly "Plan B" that could be implemented to at least significantly reduce the flooding problems if funding the entire project become problematic. X-41

Miscellaneous Comments

Chapter 91

37. A Chapter 91 License will be required for this project. This regulatory requirement should be noted in the FEIR. X-42

Charlesgate

38. Relative to the discussions regarding the MEPA Review Process/Procedures (page 1-19 and Figures 1-5 and 1-6), it is unclear how the early action Charlesgate portion of the project will be handled under the EIR procedures, particularly as it relates to the EIR Challenge Period for X-43

Final EIRs (60-days from notice of FEIR in Monitor). This is a critical timing issue in that state agencies cannot issue permits until the challenge period ends. X-43 CONT.

39. Section 6: One very beneficial aspect of the project phasing is that there is an opportunity to learn a great deal from the Charlesgate work. This is particularly beneficial since those sediments are the least contaminated. DEP therefore recommends that a significant effort monitoring what happens (or doesn't happen) to the environment be planned and performed during this first phase. X-44

Mitigation

40. A key mitigation measure will be control of dust; particularly as it relates to tracking of dirt onto roadways from trucks. The DEIR states that the contractors will be required to use wheel washes at each staging area along with typical construction dust control measures of calcium chloride and street sweeping. The FEIR should more fully discuss control strategies. X-45

41. Table 7-1, Mitigation of Project Impacts: DEP has a number of comments/questions regarding the information on this table. The Proponents' consultants and DEP staff have discussed this issue and the Table will be updated and clarified in the FEIR. X-46

42. Page 7-3: The FEIR will need to discuss the scope and reporting procedures for the Environmental Monitor. X-47

43. Page 7-7: The Contractor's DMMP shall be submitted to DEP for review/comment. X-48

44. Pages 7-11 through 7-14, Draft DEP Section 61 Findings. There are a number of what DEP believes are "missing items," examples being, DEP's CACI, lime stabilization, management of sediment reuse/disposal facilities, 24-hour hot-line, off-site noise limitation/control, etc. These will be addressed by DEP in its preparation of Section 61 Findings. X-49

45. Page 2-108 refers to a Pilot Plan to assess performance of existing particle separators. Based on discussions with the proponents' consultants it is DEP's understanding that BWSC has agreed to coordinate their efforts to study the effectiveness of their separators in the watershed. The proponents will be responsible for conducting the work, presumably through a consultant, and BWSC indicated they would share their results with the proponents. X-50

46. The discussion on page 5-79, and other sections, relative to the "responsibility for funding, enforcement and monitoring of BMPs rests on the project proponents" needs to be discussed in greater detail in the FEIR. X-51

Appendix G, Water Quality

47. In sections, the text appears to be internally inconsistent. In one paragraph (e.g. page G-4 and G-6) the text states, "... the Muddy River and its associated water bodies comply with the DEP Class B Surface Water Quality Standards," but in subsequent paragraphs it states that the fecal coliform sampling indicates significant violations of WQS. The FEIR should clarify this issue. X-52

Appendix I, Preliminary Design Report

48. Page 3-14 refers to potential for grouting work. Historically, DEP has found water quality problems where significant grouting/cement work is performed unless special care is taken to manage the impacted areas. These problems included both the discharge of silt/clay/colloidal plumes and elevated pH. If it is likely that elevated pH site drainage can get to a receiving waterbody, there may be a need to treat to reduce the pH. The CA/T and Transitway Projects have used CO_2 injection units. The control of fine particulates and colloidal material is more difficult to manage and may need polymer/chemical coagulation/settling. X-53

49. Demolition, Section 02050: Key issues-of-concern to DEP are asbestos, lead-based paint and noise/dust conditions. On the CA/T Project, asbestos-containing materials (ACM) in unexpected places and unless a specific plan is in place and ready to be implemented, construction could be significantly affected along with adverse impacts to the public. DEP's suggestion is to plan ahead and include a plan for handling asbestos in the FEIR. X-54

Volume 2

50. On pages 179 and 180 (and in other areas) there are brief discussions of the importance of the MWRA's role in resolving CSO and water quality problems. The impression is that MWRA is not doing enough to deal with the CSO issues and further that they are the key player relative to resolving the water quality problems in the basin.

51. As background on the CSO Plan for the Muddy River, the following is an excerpt from DEP's 12/31/97 MWRA CSO Control Plan Administrative Determination and Use Attainability Analysis relative to the Muddy River.

> **Muddy River (Back Bay Fens): B(CSO)**
>
> The CSO Control Strategy for the Muddy River is sewer separation, but the project is not anticipated to eliminate all overflows [up to 10,000 gallons of CSO overflow is estimated to occur in a typical year]. Therefore, DEP has concluded that B(CSO) is the appropriate designation. X-55
>
> However, with regard to the Muddy River Determination, the Mass. NPDES Permit for Boston Water and Sewer Commission (BWSC) will include an interim compliance schedule requirement for hydraulic analysis and sewer system modeling as the separation project is implemented. If the modeling indicates that the remaining CSO discharges can be eliminated, DEP will modify the permit and the segment will return to B, because it will no longer meet the regulatory condition of B(CSO)."

The real issues for long-term solution to the water quality problems relative to point source discharges is stormwater and illicit connections, neither of which are within MWRA's jurisdiction, but must be addressed by BWSC, Brookline, MDC and other stormwater dischargers.

52. Throughout the document, the Water Quality Standard (WQS) for the Muddy River is listed as Class B. It is actually B(CSO), was revised in early 1998, based on DEP and EPA approval of MWRA's CSO Control Program. This designation means that for specified rainfall conditions (based on a "typical year" specified in the CSO Control Plan) that would trip a CSO activation, the receiving water may not meet the bacterial standard, but this would not be considered a X-56

violation of WQS. This "exemption" from Class B ONLY applies to CSO impacts and NOT others such as separate stormwater. X-56 CONT.

Appendix K, Response to DEP Comments

53. N-5: The response does not fully deal with the second part of the DEP comment: "...and the project impacts can be limited to those necessary for enhancing the natural capacity of the system to [improve flood control and for prevention of pollution..."]. X-57

54. N-33: DEP does not believe that the response fully addresses the comment, and believes that the response is not fully consistent with other sections of the DEIR that state that upstream sediment will not significantly adversely effect downstream Phase I dredging. X-58

55. N-58: Based on discussions with the proponents, it is DEP's understanding that there is no existing scope of work but as part of the work to prepare the DEIR the proponents have had discussions with the other agencies about BMPs. The ultimate coordination would be part of the final management structure to be selected by the FEIR and BMP coordination will be one of the topics in the Annual Update Report, where the proponents must report on progress on all elements of the project. X-59

56. N-68: DEP did not notice any specific discussion relative to DEP's Clean Air Construction Initiative, Diesel Retrofit Program. In Table 7-1 there is reference to idling and potential use of natural gas generators. DEP will be seeking a commitment to retrofitting on-site diesel-powered construction equipment with after-engine controls and use of Low Sulfur Diesel Fuel. Based on discussions with the project proponents' consultants, it is DEP's understanding that it is their intention to utilize this program and it was to have been included in Table 7-1. There should also have been text to support and further describe that commitment. X-60

The Department of Environmental Protection appreciates the opportunity to comment on the DEIR. Please contact Rachel Freed at (978) 661-7783 or Steven Lipman (617) 292-5698 if you have any questions or comments regarding this correspondence.

Sincerely,

John Felix
Deputy Regional Director

cc: Justine P. Liff, Boston Parks and Recreation
Tim Famulare, Boston Conservation Commission
Samantha Overton, MDC
Henry Woolsey, Natural Heritage and Endangered Species Program
U.S. Army Corps of Engineers, Regulatory Division
Mark Smith, EOEA
Lester Lewis, EOEA
Jane Mead and Deerin Bab-Brott, CZM
Cynthia Giles, Michael Stroman, William Gaughan, Madeline Morris, James Sprague, Yvonne Unger, John Carrigan, Kevin Brander, Rachel Freed, Steven Lipman and Eric Worral, DEP

AP Y

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Jane Swift
GOVERNOR

Bob Durand
SECRETARY

Peter C. Webber
COMMISSIONER

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APR 8 - 2002
MEPA

April 8, 2002

Bob Durand
Secretary
Executive Office of Environmental Affairs
Attn: MEPA Office, Arthur Pugsley, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, MA 02114

RE: Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project

Dear Secretary Durand,

On behalf of the Department of Environmental Management (DEM), I am writing to provide comments to you regarding the Draft Environmental Impact Report (DEIR) filed for the above-referenced project because of our agency's longstanding commitment and investment in the preservation and protection of the Emerald Necklace Parks in both Boston and Brookline.

BACKGROUND

The Emerald Necklace Park System in Boston and Brookline is a significantly important cultural landscape that reflects the genius and vision of this country's premier landscape architect, Frederick Law Olmsted, his sons and his successor firm. Designed in the late 19th century, the Emerald Necklace, as originally planned was envisioned as a common ground providing "passages of scenery", fresh air, passive recreation and tranquility for all to enjoy. The Emerald Necklace Park System is part of a significant legacy left to the citizens of Massachusetts and the rest of the country. From Boston to the Berkshires, Olmsted designed over 300 public landscape in Massachusetts, After more than a century of use, however, much of the Olmsted legacy in Massachusetts has suffered from deferred maintenance, inadequate funding, general lack of understanding and benign neglect.

Since 1984, the Commonwealth, through the DEM's Olmsted Historic Landscape Preservation Program has made an extraordinary commitment to the preservation of Olmsted legacy throughout Massachusetts. With funding from the 1984 and 1987 open space bond bills, DEM initiated the restoration

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of the Emerald Necklace Park System. To date, approximately $16 million in historic landscape preservation funding from the Commonwealth has been provided to Boston and Brookline for the Emerald Necklace, most of which has required no cash match.

The Commonwealth's commitment to reclaiming the Olmsted legacy in Boston and Brookline is evidenced not only in the investment of capital funding for park rehabilitation projects but also in our leadership role in the creation of the Emerald Necklace Master Plan (1989, updated 2001). Through an extensive collaborative process involving, local citizens, local and state officials, park advocates, Olmsted scholars, planners and preservationists, a Master Plan was crafted to provide a decision-making framework to guide all future planning and action. The proponents have formally accepted the Master Plan as the document to direct the preservation and long-term management of the Emerald Necklace. The principles guiding the creation of the Master Plan and the future restoration are the same principles that guided Olmsted in his creation of the Emerald Necklace: flood control, water quality, habitat enhancement and park making.

The DEIR lays out what could be one of the most ambitious and comprehensive historic landscape preservation projects in the nation. There is a tremendous opportunity to ensure the long-term preservation of Olmsted's finest work in its entirety by accomplishing the five objectives of the Phase I Project: increasing flood control, improving water quality, enhancing habitat, restoring the historic landscape and instituting Best Management Practices (BMPs). DEM supports this project as making a significant contribution to implementing the Emerald Necklace Master Plan.

SPECIFIC COMMENTS

1. Project Description. (Section 1)

The Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project (Phase 1 project) is best described on pages ES -15 through ES-20: "The Preferred Plan". The Executive Summary and the rest of the DEIR drift back and forth between discussing the goals and objectives of the Emerald Necklace Master Plan and the Phase 1 project. It requires careful reading of this section and other sections of the DEIR to understand exactly what is being proposed under the Phase 1 Project.

2. Project Area Boundaries. (Section1)

The DEIR does not clearly explain which water and land areas of the Emerald Necklace Park System comprise the project area for the Phase I Project. For example, the maps illustrating the Executive Summary and the titles of these maps suggest a larger area under the purview of the Phase I Project.] Y-1

The Phase I Project area is the Muddy River from the Charles River to the outlet of Leverett Pond, Willow Pond and Wards Pond. The aerial extent of the project area is land under water, adjacent banks to the top of the bank of the river and ponds and only

those additional land areas actually disturbed during the sediment dredging portion and staging of the Phase I Project.

Phase I Project also includes instituting throughout the watershed BMPs, which relate directly to controlling and monitoring re-sedimentation of the Muddy River, improving water quality that enters the Muddy River and protecting the public's investment by improved maintenance in the watershed. Clarification is needed on the difference between the scope of the Phase I Project, the Environmental Master Plan and the Emerald Necklace Master Plan.] Y-2

3. **Project Objectives (Section1)**

Frederick Law Olmsted considered the Boston Park System (a.k.a. the Emerald Necklace Park System in Boston and Brookline) one of his most important works. The historical significance of this park system is recognized through its listing on the National Register of Historic Places in 1971 and its designation as a Landmark by the City of Boston in 1983. From its inception, Olmsted's Emerald Necklace was conceived as a marriage of engineering and landscape creation. Rehabilitation of the historic landscape is paramount to the success of this project. Therefore historic preservation must be presented in the FEIR as laying the foundation for, and reinforcing, the engineering solutions of the Phase I Project. The public needs to understand that this is a rehabilitation of an important cultural landscape and that the project will allow for the preservation of historic features while accommodating contemporary uses and purposes.] Y-3

The FEIR should describe the preservation of the landscape in greater detail, including the proposed sequence of rehabilitation projects and plans at least at a conceptual level development. Based on Boston's and Brookline's acceptance of past funding through DEM's Olmsted Historic Landscape Preservation Program, careful adherence to the Emerald Necklace Parks Master Plan, as the guiding document for all proposed rehabilitation, is required. Future funding from the Commonwealth must also contingent be on, and limited by, adherence to this Master Plan.] Y-4

The FEIR should dispense with preservation jargon such as primary and secondary periods of significance and reference to the "Continuum". The FEIR must include "*Preserve Landscape and Historic Resources*" in its list of project objectives (pgs.1-3 & 1-6).] Y-5] Y-6

4. **Preferred Project (ES-15-19 and Section 2)**

The preferred plan as described in the DEIR is the best plan to meet the objectives of Phase I of the Emerald Necklace Master Plan as described on p. ES-14. This is supported by analyses conducted by the Federal Emergency Management Agency in their review of the Charlesgate portion of this project and continuing engineering studies being conducted by the US Army COE.

5. Flood Proofing of Property (2.1.4)

The preferred plan is designed to provide flood protection from a storm event similar to that which occurred in 1996. Flood events of a higher intensity will flood the adjacent lands, and property owners need to anticipate such events. Property owners need to design new construction or expansion of existing buildings by greater than 50% so as to conform with the National Flood Insurance Standards as found in the Massachusetts State Building Code and applicable City of Boston and the Town of Brookline zoning and building regulations.

6. Dredging (2.1.5)

The discussion in the DEIR relative to dredging does a good job of presenting and summarizing proposed dredging alternatives. DEM concurs with the Proponents' preferred alternative of utilizing hydraulic dredging techniques with mechanical dewatering.

- Dragline dredging (pg.2-34): It is the opinion of DEM that draglines are too big and clumsy and could have considerable impact on surrounding trees and vegetation, and, therefore, are not recommended.
- Excavator Dredging (pg. 2-36): This methodology will require several approach areas along the river. Excavators require a large area to work from and may create disturbance of areas adjacent to the river as well as increase the level of turbidity in the river during construction.
- Hydraulic Dredging (pg. 2-38): This methodology requires the dewatering of sediments. Standard gravity methods would require a significant land-based area so that an adequate sized dewatering basin could be constructed to handle the quantity of sediments proposed to be dredged under this project. Sufficient area is not available for an adequately sized dewatering basin.
- Phagmites Removal (pg. 2-40): The DEIR does not address the likelihood that the hydraulic dredge and pipeline will get clogged if the phragmites and their root systems are not carefully removed. Y-7
- Mechanical Dewatering (pg. 2-41): DEM recommends that city water be used if the filtrate resulting from the dewatering process requires additional filtering before it can be discharged back into the river. Y-8 The DEIR lacks any reference to the decontamination of equipment during the removal of contaminated sediments. Y-9

7. Basin-wide BMPs (ES-19) and Section 2 (2.5).

Under "Solving Problems" (ES-14) the DEIR states that, "The project will institute Best Management Practices to minimize re-sedimentation rates by capturing more sediment before it reaches the river, ensuring major dredging will not be required again for nearly 70 years; improve water quality by reducing the volume, bacteria, nutrients and other contaminants entering the river as runoff; maintain and protect the public's investment by improved maintenance in the watershed, and contribute to the attainment of fishable/swimable conditions for the Charles River". Further, under a description of the Project Objectives (P. 1-6) the DEIR states that, "The Implementation of BMPs is intended to maximize the life span of the improvements for the project Y-10

objectives. BMPs will be an integral component of the overall plant (sic) to protect the public's investment in this valuable resource." It is the understanding of DEM that a 70-year life span for this project is a sound and realistic planning objective. Furthermore, it is our understanding that the DEIR proposes to achieve this goal through instituting the following:

a) BMPs listed under the "Preferred alternative for the project described in the Executive Summary (ES-15-19).
b) Basin-wide BMPs as described in the Executive Summary on p. ES-19 and further on p. ES –30.
c) Summary of Recommended BMP Alternatives in section 2.5.4 (pp2-112-2-114) which are alternatives recommended for inclusion into the BMP plan for the Muddy River watershed.
d) Best Management Practices for storm water runoff in section 5.7.

Y-10 CONT.

However, the only BMPs that have been committed to, with a funding source identified by the proponents, are those measures that are an integral part of the Phase I Project. These measures alone will not achieve the planning objective. It is sound project planning to arrest the sediment inflow into the Muddy River before the major investment of public funds in the removal of the accumulated sediment in the river. It is essential that both the structural and non-structural basin wide BMPs be instituted in conjunction with the construction of the project.

The FEIR needs to contain a BMP plan for the Muddy River Watershed that includes all the measures recommended in a, b, c and d above, a planning, permitting and construction schedule, a commitment from the project proponents to implement the plan and a dedicated funding source. Furthermore, DEM recommends that the BMP plan be expanded to address all stated project objectives. DEM also recommends that as a condition of MEPA approval of the Phase I Waiver for Charlesgate, the proponents prepare a plan/work schedule for implementation this calendar year of the basin-wide non-structural BMPs as described in section 5.7.1. Also, the proponents must carry out the necessary studies (as discussed in the DEIR) to determine which system-wide BMPs will be instituted by the proponents. These studies need to be completed by the end of the 2002 calendar year in order to be included in the FEIR.

Y-11

Y-12

Y-13

8. Mitigate Impacts (ES –19 through ES 23 and Section 7)
Mitigation Plans

The DEIR states that mitigation of construction-related impacts will be implemented in two ways:

- Contract documents will include specifications on the requirements the selected contractor must meet to reduce environmental impacts
- The contractor will prepare mitigation plans to address the major areas of concern.

DEM recommends that the plans not only be reviewed and approved by the proponents' management team, but by the funding agencies and permitting agencies as well. The CAC should also be afforded the opportunity to review and comment. The

Y-14

plans need to include a mechanism for corrective action to occur in the event that the provisions of the plans prepared by the contractor are not adhered to. Y-14 CONT.

Independent Environmental Monitor:

The IEM responsibilities, authority and chain of command need to be better defined. The IEM needs the authority to stop work in the event of violations of the mitigation measures and environmental/cultural permits and immediately initiate discussions to correct the situation. Post-facto reporting to the construction management team is not sufficient. Y-15

Historic resources:

To ensure that the Muddy River Project is not at cross-purposes with the historic preservation objective, the FEIR must include mitigation measures that protect the extant historic and cultural resources located within the Project Area. The DEIR does not adequately address the protection of plantings, structures and other historic landscape features within the Project Area. In addition, DEM recommends that the Proponents will be required to enter into a consultative process with the Massachusetts Historical Commission, and if applicable, the Boston Landmarks Commission and the Brookline Preservation Commission to review and determine effective mitigation measures for all impacts to historic resources, including the Carlton Street Footbridge. Y-16

Other Resources:

- The comment letter from DEP should be used as a guide in terms of mitigation of construction-related impacts in the areas of sediment quality, water quality and wetlands.
- The comment letter from DWF should be used as a guide for fish and wildlife resources.

Public Education Program:

The public's understanding and support of the project is critical to its success. The Executive Summary could be a valuable tool in conveying the project objectives, scope and approach. The Executive Summary needs to be developed as a public information document providing a better description of the significance of the projects, its scope and it's benefits to the public. Y-17

In addition to what is described in the DEIR, the proponents must develop a comprehensive public information and outreach strategy. Components need to include but not be limited to: project fact sheet, website, and on-site interpretation by either the Boston or Brookline Ranger Programs or as a requirement of the construction contract. Y-18

9. Management and Maintenance Plan (ES-28 and Section 8, and Appendix J)

The condition of the Emerald Necklace is a direct result of over fifty years of neglect and deferred maintenance. The DEIR states (ES-28): "To ensure this investment is protected, a Management and Maintenance plan must be in place. This Plan must identify the management, staffing, equipment and procedures needed to sustain the Phase Y-19

I dredging, daylighting, revegetation, establishment of BMPs, structures and other related construction." In his writings, Olmsted stressed the importance of maintenance as an investment in the future: "The dividends to the second generation much larger than to the first". The management and maintenance of this significant urban open space resource must be a coordinated and cooperative effort between the proponents. The Plan must be based on maintaining Olmsted's vision for the park system. Although the Maintenance Plan prepared by ETM Associates is a step in the right direction, it is too generic in scope and approach. More attention needs to be given to the specific tasks necessary to maintain the historic character and fabric of this cultural landscape.

Y-19 CONT.

The Management and Maintenance Plan needs to be a requirement of the FEIR. In addition to identifying the management, staffing, equipment and procedures, the Management and Maintenance Plan needs to establish measurable environmental performance standards for sediment removal, erosion control, water quality, wetland and upland plantings, fish resources, wildlife resources, culvert maintenance, and structural source control and treatment control BMPs. The Plan must also present an acceptable strategy for closing the gap between hours needed to maintain the Emerald Necklace and hours currently available. The dependence upon volunteers alone to address this issue is inadequate and unrealistic.

Both the existing federal funding agency (Federal Emergency Management Agency) and the anticipated federal funding agency (U.S. Army Corps of Engineers) require as a grant condition that the project proponents (non-federal sponsor) assume full responsibility to operate and maintain the completed project. FEMA is funding the federal share of the Charlesgate section of this project. FEMA's "Hazard Mitigation Grant Program Desk Reference" provides in Section 11 (Page 11-3) under the subsection entitled "Maintenance of the Project" that "The subgrantee (City of Boston) or the owner of the property is responsible for maintaining the project after the initial implementation. The FEMA grant is not intended to pay for future maintenance; such as mowing open space or ensuring that hurricane shutters are operable. The State should encourage subgrantee to develop a maintenance plan that identifies the maintenance tasks, schedule, and budget (e.g. a clearance schedule and funding plan for a culvert improvement project)".

It is anticipated that the COE will be the federal sponsor for the remainder of the project that is the subject of this DEIR. The COE requires that a Project Construction Agreement (PCA) be executed by the non-federal project proponents prior to the release of funds for construction. Article VIII of the standard PCA provides that "Upon notification in accordance with Article II.C of this Agreement of the completion of the construction and for so long as the Project remains authorized, the Non-Federal Sponsor shall operate, maintain, repair, replace and rehabilitate the entire Project or the functional portion of the Project, at no cost to the Government, in a manner compatible with the Project's authorized purposes and in accordance with applicable Federal and State laws as provided in Article XI of this agreement and specific directions prescribed by the

Government in the Operation, Maintenance, Repair, Replacement and Rehabilitation Manual and any subsequent amendments thereto."

10. Annual MEPA Updates (AUs)

In addition to the elements of the annual update described in the DEIR, the annual report needs to include:

- Mileposts that clearly measure the attainment of environmental goals and the adherence to the environmental performance standards
- Summary and analyses of the reports listed on p. ES-31
- A summary of funds expended on the implementation of the project, BMP Plan and the Management and Maintenance Plan during the subject year.
- Budget and funding source for the coming year
- Summary of monitoring information on the current environmental conditions
- Copies of the COE annual inspection report and the Charlesgate annual inspection report with actions to be taken to address issues raised in these inspection reports.

The annual report should be reviewed and commented on by the CAC, any oversight body established, funding and permitting agencies, noticed in the MEPA Environmental Monitor and circulated to the commentaries to the ENF and EIRs.

The MEPA certificate needs to provide a mechanism for the proponents to take the necessary actions to address issues raised both in the report and in the comments from the CAC and the funding and permitting agencies.

Y-20

11. Establishment of an Emerald Necklace Parks Environmental Oversight Committee

The DEIR states (p.8-4) "In order to ensure that this level of investment is protected and preserved, a management and maintenance structure for the parks must be in place"

DEM recommends that, as a condition of permit approvals and funding from the Commonwealth, the Secretary immediately establish an Environmental Oversight Committee to administer all activities impacting the Emerald Necklace Park System. The Committee should include, at a minimum, the following representatives:
Boston Parks and Recreation Department, Brookline Parks and Open Space, Metropolitan District Commission, EOEA/DEM, Executive Office of Transportation and Construction, Massachusetts Turnpike Authority, CAC/community representatives from both municipalities, Boston Greenspace Alliance, Brookline Greenspace Alliance, Massachusetts Historical Commission, Boston Landmarks Commission, Brookline Preservation Commission, Charles River Watershed Association, Boston Society of Landscape Architects and The Emerald Necklace Conservancy. The Secretary should require the Proponents to provide funding and resources to hire an independent Emerald Necklace Environmental Oversight Committee Administrator to provide staff support to the EOC.

Y-21

The EOC should initially meet monthly to work out the details of a system-wide maintenance and management plan, including budgets and proportional funding requirements to implement the plan. The EOC should also provide coordination and oversight of all capital and maintenance activities related to the implementation of the Emerald Necklace Master Plan and the Phase I Project. The EOC should hold regular public meetings to solicit input on all activities.

Y-21 CONT.

12. Retain the CAC as an advisory committee to MEPA and Management Structure.

The MEPA certificate establishing a special review procedure for the Emerald Necklace Improvements Master Plan and Phase 1 Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project established a CAC. DEM applauds the CAC for their commitment to assist with the review of this project. Certificate calls for the CAC to continue its advisory role through the completion of the construction of the project (the four phases of the Emerald Necklace Master Plan), which the certificate states will be done in phases over the course of approximately fifteen years.

Y-22

The DEIR states in several locations that the CAC will continue their contribution by reviewing the Annual MEPA updates.

The Water Supply Citizens Advisory Committee was established through the MEPA process in the late 1970s in conduction with MEPA's review of MDCs Water Supply Long-Range Plan. WSCAC still continues to provide advisory services to the MWRA.

The CAC should continue its advisory role to the MEPA process and whatever management structure is established.

13. Establish a dedicated account to fund operation and maintenance

The DEIR states (p. 10-21) that "the MOU signed by several parties including the City of Boston and the Town of Brookline commit the City and Town to provide O&M funding over the long term to maintain the improvements constructed as part of this project. The new improvements include new culverts, the dredged river and new landscaping."

Y-23

The operative sentences in Section 8 & 10 are found in the last paragraph on p. 10-21; "The project proponents agree that the level of maintenance describe in section 8 is appropriate. The proponents will seek to fund this level of maintenance, subject to appropriation and the availability of funds". This statement does not reach the level of commitment anticipated in the MOU, the ENF Certificate for the Phase 1 Project, in the MEMA grant agreement with the City of Boston for the Charlesgate portion of the project or what will be required in the future COE Project Agreement.

DEM recommends that Boston and Brookline establish a dedicated maintenance trust account to fund the maintenance of the Phase I Project. Boston and Brookline can establish this dedicated account with the savings generated by the Commonwealth agreeing to fund the entire non-federal share of the first $43.2 million of an anticipated

COE/state/city/ town funded project. The normal funding arrangement with a COE sponsored project is for the state and the local sponsors to spilt the 35% non-federal share or $15.2 million in this case. Boston and Brookline thus will each save approximately $7.6 million in avoided costs associated with the project. Y-23 CONT.

MDC should also seek legislative authorization for the establishment of a similar dedicated funding stream for their share of the required operation and maintenance.

14. **Charlesgate**

DEM recommends in terms of the Charlesgate section of this project the following items:

- The proponents need to prepare a maintenance plan (a requirement of the FEMA/MEMA grant) to include the following items: Y-24
  - -semi-annual maintenance tasks (land surface and channel)
  - -work schedule
  - -budget
  - -source of funds
- The proponents need to establish maintenance performance standards or environmental indicators to judge if the hydraulic capacity of the Charlesgate water channel after the completion of the Charlesgate sediment dredging project is being maintained. Y-25
- The proponents need to establish an annual project inspection schedule with the federal and state project sponsors, management board and CAC. Y-26
- To protect the public investment in the removal of the sediment from the Charlesgate channel, the proponents need to establish a plan/schedule/budget for implementing the basin –wide non-structural BMPs listed in section 5.5.1 of the DEIR this calendar year, and should complete by December, 2002, the studies to determine the which structural BMPs will be installed in conjunction with this project. Y-27
- The proponents need to complete a landscape plan for the restoration of the land disturbed in the process of the sediment removal consistent with the landscape restoration plan being developed for the other sections of this project. Y-28

In closing, DEM would like to express our appreciation for your support of the preservation of the Olmsted legacy not only in Boston and Brookline but also throughout the Commonwealth. We thank you for this opportunity to comment.

Very truly yours,

Peter C. Webber
Commissioner

Z

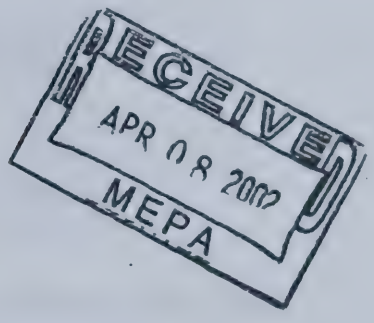
TOWN of BROOKLINE
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April 4, 2002



Mr. Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

Based upon discussions with the Army Corps of Engineers and other recent developments since the filing of the EIR for the Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Restoration Project, we want to reaffirm our expectations concerning funding for this comprehensive initiative. Specifically, this letter is intended as an update of the Funding Strategy as presented in Section 10 of the EIR.]Z-1.

In November 1999 the Board of Selectmen executed a Memorandum of Understanding for this Project with the City of Boston and the Commonwealth of Massachusetts. The Town of Brookline has fulfilled its funding obligations for "the totality of the Town's share for Phase I". The Board of Selectmen unanimously recommended and Town Meeting overwhelmingly voted the appropriations stipulated in this agreement.

Given the expansion of Project scope and costs since the execution of the MOU more than two years ago, we recognize that additional Town capital funding will be required. Further, we understand the need to delineate a more specific approach to providing funding for Best Management Practices/Operations and Maintenance. Accordingly, we are prepared to take the following steps:

- Schedule an additional $1,625,000 in the Town's next five year Capital Improvement Program (deferring other scheduled projects, if necessary);

- Include the Town share of BMP/O&M costs in the next update of the Town's long-range Financial Forecast;

- Enter into a revised MOU reflecting the local funding commitments outlined above along with the funding commitments of the other parties to the agreement.

Capital Funding – Applying the allocation methodology specified in sub-section 10.14 of the EIR we anticipate an additional $1,625,000 in Brookline capital funding for the $91.1 million Project. This is in addition to the $500,000 already appropriated in accordance with the MOU. Our most recent information suggests that in addition to the $6.9 million already assembled the capital funding allocations will be:

Current Funding	$ 6,900,000
Army Corps	$46,514,000
State	$25,069,910
Boston	$10,969,090
Brookline	$ 1,625,000
Total	$91,078,000

Best Management Practices/Operations and Maintenance - Each year as condition precedent to the preparation of the Town's Annual Financial Plan, the Town Administration prepares a long-range Financial Forecast that attempts to account for all anticipated income and expenditures. Programs, projects, fixed costs, etc., that are not included in the Forecast usually are not reflected in the annual budget covered by the first year of the Forecast. To date, the Muddy River BMP/O&M have not been included in previous Financial Forecasts. The Town's share of BMP/O&M, as specified in the Army Corps Decision Statement will be included in the next long range Financial Forecast. The next Forecast will be issued in the Fall of this year and will frame Town operating budget requirements starting for FY04.

Memorandum Of Understanding – As the initial MOU was executed prior to Town Meeting's first appropriation for the Town's Phase I share, we are prepared to enter into a revised MOU as a basis for recommending additional Town Meeting appropriations to support agreed funding commitments for capital and BMP/O&M. Assuming federal funding commitments of at least $46 million from the Army Corps and other sources, then the State, Boston, and Brookline can affirm their updated mutual funding commitments as a basis for future Town Meeting action. If an updated MOU can be executed prior to the end of this calendar year, appropriations could be sought as early as FY04, if necessary.

This delineation of Town expectations is presented as re-affirmation of the Town's commitment to this Project, as originally expressed in the MOU. If there is a need for further explanation, please do not hesitate to contact this Board or DPW Commissioner DeMaio.

Thank You for your consideration.

Sincerely,

Board of Selectmen

Richard J. Kelliher
Town Administrator

Cc: Arthur Pugsley, MEPA Office
Congressman Barney Frank
Governor Jane Swift
Mayor Thomas Menino
Representative Frank Smizik
Representative Ruth Balser
Representative Paul Demakis
Representative David Donnelly
Representative Brian Golden
Senator Cynthia Creem
Nancy Daly, Brookline Advisory Committee
Betsy Shure Gross, Executive Office of Environmental Affairs
Justine Liff, Commissioner Boston Parks and Recreation
Margaret Dyson, Director of Historic Parks, Boston Parks & Recreation
Howard Liebowitz, Mayor's Office
Vincent Mannering, Boston Water and Sewer Commission
A. Thomas DeMaio, Commissioner of Public Works
Tom Brady, Conservation Administrator
David Turner, Town Counsel
Citizen Advisory Committee

AA
AP

THE COMMONWEALTH OF MASSACHUSETTS

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4/8/02

April 4, 2002

Bob Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

RE: Muddy River Restoration Project
EOEA #11865

Dear Secretary Durand:

I am providing you this letter as evidence of the Massachusetts Emergency Management Agency's (MEMA) support of the Muddy River Restoration Project.

During the Fall of 1996 and in the spring of 1998, flows in the Muddy River exceeded the hydraulic capacity of the existing systems, resulting in significant flooding and damage in Boston and Brookline. The 1996 flooding was especially significant in that it caused an extended outage of the MBTA Green Line, disrupting commuter traffic, endangering public safety and resulting in major damage to Kenmore Station. In 1996 and 1998 alone, Boston and Brookline experienced over $50 million of damage from flooding.

The Muddy River Restoration Project will provide the critically needed flood control that will avoid a repeat of the flooding events that not only cause major damages, but place a huge burden on our public safety resources. In addition, this project is essential to protect the Green Line, hospitals, museums, universities and colleges, businesses and residents alike.

The Draft Environmental Impact Report (DEIR) is a thorough document that provides the documentation necessary to demonstrate that the project will achieve, not only its flood control objective, but will also be a significant environmental improvement of the water quality and habitat in the Muddy River. Furthermore, we believe there are numerous public safety benefits both due to the reduction in flooding and through the rehabilitation of the historic landscape of the Emerald Necklace.

It is essential that this project move ahead as quickly as possible in order to reduce the chance of damages from future storms. MEMA has worked closely with the Federal Emergency Management Agency and the Department of Housing and Urban Development, to provide over $4.5 million in needed flood mitigation funds for the restoration project. However, the Charlesgate dredging project must be completed this year and the remainder of the project must proceed as soon as funds can be secured.

We urge you to expedite all necessary approvals for the project so that work can immediately begin on this important project. Your support is greatly appreciated and essential to providing both communities with the flood protection they need for their residents.

Sincerely,

Stephen J. McGrail
Director
Massachusetts Emergency Management Agency

cc: Justine Liff, Boston Parks & Recreation Department
Thomas DeMaio, Brookline Public Works Department

BB

United States Department of the Interior

AP

NATIONAL PARK SERVICE
Frederick Law Olmsted National Historic Site
John F. Kennedy National Historic Site
Longfellow National Historic Site
99 Warren Street
Brookline, Massachusetts 02445

In Reply Refer To:

RECEIVED
APR 10 2002
MEPA

A3815

April 8, 2002

Robert Durand, State Secretary of Environmental Affairs
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
C/O MEPA Unit
Boston, Massachusetts 02114

FAXED 4/8/02

Dear Secretary Durand:

Thank you for the opportunity to comment on the *Draft Environmental Impact Report for the Muddy River Rehabilitation Project, Emerald Necklace, Boston and Brookline Massachusetts*. This is an ambitious project that will have a tremendous impact on the one of the city's most valued resources and can serve as a model for the nation.

The state is fortunate to have the comprehensive Emerald Necklace Parks Master Plan (1989/2001) to guide this project and future planning and action for the park system. As stated in the plan, the Emerald Necklace is nationally significant as "the most ambitious combination of landscape architecture, metropolitan area planning, and engineering that Olmsted ever completed in any of the cities in which he worked." Many landscape architects, historians, and preservationists consider the Emerald Necklace to be Olmsted's greatest masterpiece.

The Draft Environmental Impact Report clearly recognizes the historic significance of the Muddy River project area. However, after reviewing the plan, we feel it is important to stress that the historical intent and character of the park system must set the context for decision-making throughout all phases of planning, design, and construction for this to be a successful project. All parties involved in the project, including the Army Corps of Engineers, need to be aware of the historic significance of the landscape and preservation concerns must take precedence. BB-1

We look forward to the vast improvements this project will provide for both protecting the health, safety, and welfare of the public, while re-establishing Olmsted's vision for this nationally significant park system. Again, thank you for the opportunity to comment.

Sincerely,

Myra F. Harrison
Superintendent
Frederick Law Olmsted NHS

Robert R. Page
Director
Olmsted Center for Landscape Preservation

CC

AP

02-04-11 P03:04 IN

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

RECEIVED
APR 11 2002
MEPA

April 8, 2002

Secretary Bob Durand
EOEA
251 Causeway St, 9th Floor
Boston, MA 02114-2150

FAXED 4/9/02

Attn: Arthur Pugsley, MEPA Unit

RE: Muddy River Flood Control Project, Boston and Brookline, MHC# 9170, **EOEA#11865**

Dear Secretary Durand:

Staff of the Massachusetts Historical Commission have reviewed the Draft Environmental Impact Report concerning the proposed project referenced above. The Muddy River and its historic landscape is listed in the State and National Registers of Historic Places as part of the Olmsted Park System.

MHC received additional information from the Army Corps of Engineers on February 4, 2002. In response to this information, the MHC concurred that the project has the potential to cause adverse effects. Specifically, the construction of cascade aeration structures and large culverts may in fact have an adverse effect (36 CFR 800.5(a)(2)(v)) on the character of the Muddy River and Olmsted Park System depending upon their size, location, and function. CC-1

Demolition of any stone arch culverts would also constitute an adverse effect (36 CFR 800.5(a)(i)). CC-2

The MHC requests more detailed plans, drawings, and technical information concerning the aeration process in order to begin consultation to seek alternatives that would avoid, minimize, or mitigate (36 CFR 800.6) the effects. Photographic simulations or renderings would be especially helpful in assessing the impacts of proposed aeration structures. CC-1 CONT.

The MHC also requests more detailed drawings, plans and technical information concerning the culvert enlargements for the Brookline Avenue, Riverway and Avenue Louis Pasteur areas, including information on the new headwalls, as well as detailed plans for the daylighting of the former Sears Parking Lot and Upstream of Avenue Louis Pasteur. CC-3

It has come to the attention of the Massachusetts Historical Commission that planning for the treatment of the Carleton Street Footbridge may be underway. MHC requests that further documentation and proposed plans be submitted to MHC as early in the planning stages as possible so that all alternatives for its treatment may be considered. CC-4

The MHC notes that the proposed project alternatives generally include a great deal of rehabilitation work to restore the historic landscape along the Muddy River in tandem with the flood control objectives of the project. Dredging and bank stabilization have been carefully planned to take into consideration the historic planting plans and original characteristics of the Muddy River. MHC strongly encourages that the FEIR include a more detailed analysis for a proposed maintenance plan in order to protect the substantial public investment in this significant flood control and preservation project. MHC notes that a cyclical inspection program is proposed and encourages the proponents to expand on this concept in future environmental documents. CC-5

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www.state.ma.us/sec/mhc

Finally, MHC suggests that the Army Corps of Engineers, the Boston Landmarks Commission, and the Brookline Preservation Commission, as well as any other interested parties, meet to discuss the project's effects once the public review period for the Draft Environmental Impact Report is closed and comments from the public are in. This will facilitate the agency's responsibility for identifying consulting parties and for planning to involve the public in the Section 106 process, including the involvement in the resolution of any adverse effects (36 CFR 800.2(e) and (f)). CC-6

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). Please do not hesitate to contact Ann Lattinville of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

xc: Marc Paiva, ACOE
Boston Landmarks Commission
Brookline Preservation Commission
Boston Parks and Recreation Department

DD

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

RECEIVED
APR 12 2002
MEPA

April 12, 2002

Secretary Bob Durand
EOEA
251 Causeway St, 9th Floor
Boston, MA 02114-2150

Attn: Arthur Pugsley, MEPA Unit

RE: Muddy River Flood Control Project, Boston and Brookline, MHC# 9170, EOEA#11865

Dear Secretary Durand:

Staff of the Massachusetts Historical Commission have reviewed the Draft Environmental Impact Report concerning the proposed project referenced above.

MHC wishes to supplement comments submitted April 8, 2002, concerning the Draft Environmental Impact Report. As stated in MHC's April 8, 2002 correspondence to you, it has come to the attention of the Massachusetts Historical Commission that planning for the treatment of the Carlton Street Footbridge, an historic single-span steel truss bridge, may be underway. The Carlton Street Footbridge is located within the Muddy River district of the Olmsted Parks system. The Muddy River and its historic landscape is listed in the State and National Registers of Historic Places as part of the Olmsted Park System. The Carlton Street Footbridge was designed by Brookline's first town engineer, Alexis French, who collaborated with Olmsted in the design of the Riverway, among other projects. This important bridge provides access between Brookline's historic Longwood/Cottage Farm neighborhoods and the Riverway Park section of the Emerald Necklace.

According to the DEIR, the Carlton Street Footbridge is proposed for restoration in a future phase of the project. If demolition of this historic bridge is proposed, it would have an "adverse effect" on the Muddy River district (950 CMR 71.05(a)). MHC reiterates its request that further documentation and proposed plans be submitted to MHC as early in the planning stages as possible so that *all* alternatives for its treatment may be considered. Additionally, MHC requests that if demolition is proposed, that detailed exploration of alternatives be carefully explored. Potential funding sources for the preservation and rehabilitation of the footbridge should be investigated. MHC suggests that the proponent explore the option of applying for a historic preservation grant available through the TEA-21 transportation enhancement program through the Federal Highway Administration and Massachusetts Highway Department. DD-1

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These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), M.G.L. Chapter 9, Section 26-27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00) and MEPA. Please do not hesitate to contact me if you have any questions.

Sincerely,

Brona Simon

Brona Simon
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

xc: Marc Paiva, ACOE
Boston Landmarks Commission
Brookline Preservation Commission
Boston Parks and Recreation Department
Patrice Kish, DEM

EE
AP

Town of Brookline
Conservation Commission

Stephen Burrington, Esq., Chair
Joanna Wexler, Vice-Chair
Werner Lohe, Esq., Clerk
Roberta Schnoor
Adam Kahn
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Associates
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Barbara Mackey
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RECEIVED
APR 09 2002
MEPA

April 4, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
Attn: MEPA Office, Arthur Pugsley
251 Causeway Street, Suite 900
Boston, MA 02114

RE: DEIR: Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project – EOEA # 11865

Dear Secretary Durand,

I am pleased to provide comments on behalf of the Brookline Conservation Commission (the Commission) to you and the MEPA Office on the Muddy River Restoration Project. The Commission has been involved in planning the restoration of the Emerald Necklace and the Muddy River for many years, and we look forward to the continuation of this important project.

General Comments

The Commission strongly supports the process that has been developed by the project proponents and their consultants to move through project design, permitting and implementation. The scale of this project is large, as is the cost, and there will be impacts to the river and its associated wetland and riverfront areas, especially as a result of the large scale dredging proposed. Nevertheless, if all of the goals of the project are to be met – flood relief, water quality and habitat enhancement, and historic landscape restoration – the proposed general project approach, removal of in-stream constrictions, bank to bank dredging, adoption of measures to reduce future sediment loadings, and landscape restoration, appears to be the best alternative. However, we believe more analysis needs to be done to ensure that the interests identified under the Wetlands Protection Act are protected. The Commission looks forward to reviewing this analysis in the FEIR, and ultimately the Notice of Intent for the portions of the project that will occur in Brookline EE-1

Because the project relies heavily on dredging to solve the river's problems, the FEIR will need to go further in analyzing opportunities to control resedimentation of the river. While there are still many questions remaining to be answered in the FEIR concerning design, management and maintenance, we are confident that the final project will be a benefit to the park, the waterway, and the communities that depend on and impact the Muddy River and the Emerald Necklace. EE-2

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We note that the Conservation Commission is a signatory to the comment submitted to the Emerald Necklace Citizen's Advisory Committee ("CAC"). The Commission signed the letter to indicate its strong support for the project concept as a whole. However, as noted here, significantly more design and evaluation will be required before full-scale construction should be permitted to begin. In addition, the Commission still has serious concerns regarding a number of aspects of the project, not all of which were highlighted in the CAC letter. Those concerns are summarized in this letter. Finally, the Commission does not endorse all of the comments in the CAC letter, such as the comment relating to the proposed requirement for a guarantee of future funding by the proponents.

BMPs: Source Controls, Treatment Controls and Runoff Management

- ***The DEIR lacks sufficient information to support the preferred alternative for BMPs and stormwater management. The FEIR should present a thorough alternatives analysis, including a cost-benefit analysis.***
- ***The recommended Pilot Plan should be implemented immediately.***

Because the majority of the sediments that accumulate in the Muddy River are brought in by stormwater, managing stormwater in an effort to minimize the reintroduction of sediments and other pollutants is obviously critical to this project. The preferred project design as described in the DEIR would rely on a combination of source controls and so-called treatment controls to do so, and suggests that one goal of the proposed project is to reduce sediment loads to the river by 30% from current conditions.

The DEIR focuses on stormwater management programs that are or will be implemented by Brookline, Boston and the MDC, including street sweeping, regular catch basin monitoring and cleaning, sedimentation and erosion control, citizen education and waterfowl control. A Pilot Plan is recommended to determine the spatial distribution of sediment loading in Brookline, and structural BMPs could be installed depending on the results of the Plan's findings. A total of four particle separators are suggested for specific end-of-pipe treatments at specific locations. Finally, the most significant effort in terms of cost is the creation (and presumably long-term maintenance) of numerous in-stream "sedimentation basins," or areas of the river that will be over-dredged. These areas would collect sediments and the associated pollutants and periodically be cleaned out by some form of small-scale, localized dredging or other removal process.

In-stream sedimentation basins are an uncommon BMP, and suggest a stormwater management approach that is even farther downstream than "end-of-the-pipe." The DEIR does little to explain where and how these have been used in the past, or to present data to support their use. We expect to see information about the removal rates, life span and maintenance requirements of in-stream sedimentation basins. If the basins are proposed as a last-ditch effort to entrain sediments and other pollutants, and to thus prolong the overall life of the full-scale dredging, they should not represent, as they do, 34% of the total investment in BMPs, more than the cost of all of the other BMPs combined (it must be emphasized that $4.29 million of the $11.25 million BMP budget will go to design development, engineering, contingencies and cost escalation).

The FEIR should compare the costs and benefits of the in-stream basins to other off-line treatments, including the possibility of large underground treatment /containment facilities beneath parkland and parking lots, and/or multiple smaller sedimentation control devices such as those proposed to be evaluated under the Pilot Plan. The FEIR should examine whether any of these alternatives would allow a greater than 30% reduction of current sedimentation loads. Maintaining in-stream sedimentation basins will be expensive, and will create regular potentially significant impacts to the Muddy River and perhaps the Charles River as well. These impacts will only be justifiable if all other alternatives have been ruled out. We suggest the Pilot Plan be implemented immediately so that the findings and recommendations can be included in the FEIR. Meaningful and thorough alternatives analyses will require such information. The recommendation to move forward with in-stream sedimentation basins is premature based on the information available to date.

I wish to emphasize that the level of analysis of measures that would prevent sediment from entering the river in the first place, and that would potentially obviate the need for in-stream basins and a long-term program of basin dredging, falls very far short of what the Brookline Conservation Commission would require before issuing an order of conditions under the Wetlands Protection Act. Before the project would be permittable, significant additional development of source controls and re-examination of the in-stream basin proposal will be necessary. This needs to happen in the next stage of the MEPA process and be reflected in the FEIR. EE-5

The FEIR should include detailed stormwater management plans for the MDC (see comments below), and discuss the efforts that will be made by Brookline and Boston in the Muddy River drainage areas above and beyond what is already being done in other areas of their communities. These should include comprehensive mapping of drains and catch basins, and a cleaning and inspection schedule. We suggest analysis be done to identify priority drains and catch basins which would receive a higher level of maintenance to protect the Muddy River. Some areas, for example, could receive more frequent street sweeping in the critical late-winter and early-spring periods, and higher levels of parking regulation enforcement to increase the effectiveness of street sweeping. EE-6

The FEIR should also examine the possibility of putting swales in parklands around Leverett Pond where there are obvious sheet runoff and sedimentation problems from both the Boston and Brookline sides of the park into the pond. The reorientation of Daisy Field alone may not be enough to eliminate the extreme runoff problem there. The FEIR should include an analysis of additional runoff control measures that could be used to stabilize the field and reduce runoff. EE-7 EE-8

We suggest an analysis be done of other ways to reduce the volume of stormwater generated in the watershed, such as the installation of rain barrels and infiltration devices at the site level. Management of stormwater at the site level is ultimately the best approach, and this project provides us with great incentive to move forward in this direction. The costs and benefits of such programs should be presented. EE-9

Waterfowl control efforts have begun in some parts of the project area in Brookline. These efforts should be continued and expanded to include Boston. The FEIR should present a summary of work done in this area, including program costs and effectiveness. EE-10

Management and Maintenance

The proponents must commit to maintenance in writing.

This section of the DEIR details significant possible maintenance options for the long-term management of the park system. While there are many proposed management structures, and the goals are well presented, the language of this section is entirely too uncertain. A project of this magnitude simply cannot move forward without commitments to maintenance. Although municipalities cannot commit future expenses due to budgetary restraints, there is no reason the proponents cannot commit to their maintenance responsibilities in writing. Since the entire project is contingent on funding, separating out the maintenance section as if it is somehow different from the rest of the plan implies less commitment to this and is thus highly suspect. EE-11

Project Phasing

More analysis of and planning for sediment management from upstream sources must be completed before dredging at Charlesgate moves forward. EE-12

Relief of constrictions and daylighting at former Sears Tower parking lot should be considered as a second priority action item. EE-13

The current DEIR recommends breaking off the Charlesgate portion of this project as an early action item, and requests permitting agencies to move forward with permitting as soon as possible to allow for rapid implementation. The Commission recognizes the urgent flood hazards that the constrictions at Charlesgate create, and we agree that once a thorough environmental review is complete, work should begin first in that location. However, moving forward with a dredging project without a complete plan to minimize resedimentation is not justifiable given the enormous short-term impacts dredging will have.

In addition, we suggest the proponents investigate the possibility of moving forward with the daylighting of culverted sections of the river under the former Sears Tower parking lot and the area upstream of the Fens Bridge as the next phase to be implemented after Charlesgate. These areas cause the greatest flooding problems for the upstream sections of the river, including the MBTA's Kenmore station, and are thus, like Charlesgate, time sensitive pieces of the project.

MDC and Mass Highway Participation

- ***The MDC and Mass Highway must join the proponents in committing to their maintenance responsibilities. The state must commit the funds to enable the MDC to do so.***

Although the MDC has clear responsibilities for management and maintenance, especially around the significant area of stormwater management, there is little or no detail about how the MDC will carry out its responsibilities under this project. In fact, the DEIR makes it quite clear the MDC is not actually doing the work laid out in its own stormwater management program. While both Boston and Brookline have in place or in development detailed stormwater management plans, including budgets, manpower and equipment projections, MDC has only general guidelines. Yet many of the roadways, drains and catch basins that drain directly into the Muddy River are their responsibility. The MDC will be required to obtain NPDES Phase II permits from EPA in 2003 for their drains, so there is no reason not to include this as part of the Muddy River project. As the work on permitting and design continues, there must be an effort to develop the capacity and funding for stormwater management to move forward in MDC. If this cannot happen, then the responsibility must be taken on by another agency. A project of this scale cannot move forward with such a glaring hole in its maintenance plan.

Additionally, Mass Highway has several state roads that drain into the Muddy River, most significantly Route 9. Although the DEIR indicates Mass Highway maintains their catch basins, evidence does not seem to support this. Many of the catch basins along Route 9 are completely dysfunctional and more attention needs to be paid to their maintenance.

Sampling and Monitoring to Identify Watershed Hotspots

- ***Potential "pollution hotspots" should be identified and plans made to eliminate any problem areas.***

As investigations and planning continue, a more thorough program to identify potential "pollution hotspots" in the watershed should be developed and implemented. The irregular distribution of contamination in sediments indicates that some portions of the river may receive much more contaminated runoff than others. Possible sources of contamination, especially those that could discharge directly to the river, should be identified and evaluated in the FEIR. More sampling in sediments should also be done for petroleum by-products.

While the long-term issues surrounding the use of Brookline's so-called Industrial Island, on the banks of the river just downstream of the Route 9 crossing, need to be considered through other processes than this phase of the project, the area should be investigated as a possible source of contamination.

Other Information Needed in FEIR

There are numerous other issues that the FEIR will need to cover in more detail than has been developed to date. Obvious examples are further development of the dredging details, staging areas, contingency plans for wet weather difficulties that may occur during dredging, project phasing issues, and the possibility of more small-scale demonstration projects within the watershed to reduce pollution and improve water quality. We also suggest the FEIR include an update of ongoing work that is being done by BWSC and Brookline DPW on their respective storm drain systems to reduce flooding and improve water quality in the drainage systems. Of particular interest are drain cleaning work and sanitary sewer separation projects. The Village and Tannery Brook drains are of particular importance due to their role in potential flooding of the MBTA. Separation work in the Stony Brook conduit should also be detailed as it is of direct importance to the Muddy River's flooding and water quality issues.

EE-16-99

EE-17-99

Of note, we hope to see more details about long-term management to prevent invasive species from reestablishing themselves, and whether the proponents plan to use mechanical means, chemical treatments, or other options when these species reappear.

EE-18-99

Distribution of Reports and Data

To build support for the long term funding that will be needed for this effort, one obvious outreach tool will be the reports and data that are generated over time for this project. The Commission recommends wide availability and even distribution of these reports, to include not only the MEPA Office and project insiders, but also the many interested non-profit groups, members of the CAC, interested universities and so on.

EE-19-99

Conclusion

The Commission looks forward to the continuation of this project, and to working with your office as well as the many other stakeholders to ensure that the restoration of this resource moves forward in ways that will meet the goals of the project while avoiding or minimizing impacts. Thank you for the opportunity to comment and we look forward to your certificate.

Sincerely,

Stephen H. Burrington, Esq., Chair
Brookline Conservation Commission

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Town of Brookline
Conservation Commission

Stephen Burrington, Esq., Chair
Joanna Wexler, Vice-Chair
Werner Lohe, Esq., Clerk
Kate Bowditch
Barbara Mackey
Roberta Schnoor
Elissa Tonkin

(COMMENTS ON ENF.)

Asso
Keith
Joan
Susan
Mario

RECEIVED
APR 22 1999
MEPA

April 21, 1999

Bob Durand, Secretary
Executive Office of Environmental Affairs, Attention: MEPA Office
100 Cambridge Street – 20th Floor
Boston, MA 02202
Re: Emerald necklace Restoration Project, EOEA No. 11865

Attn: Laura Rome

Dear Secretary Durand:

I am writing to submit the following comments on the environmental notification form for the Emerald Necklac Restoration Project, EOEA No. 11865, on behalf of the Brookline Conservation Commission.

We have worked with the Boston Parks and Recreation Department and Brookline Department of Public Works during their preparation of the *Emerald Necklace Environmental Improvements Master Plan (ENMP): Phase I, Environmental Notification Form*. As the project moves into the environmental review stage, we look forward to a detailed examination of various technical questions, as well as the development of a public review process. There are several particular areas that the Conservation Commission feels need detailed examination and would like to see included in the scope for the Environmental Impact Report.

At the outset, we wish to underscore both our very strong support for the Muddy River Restoration Project and the other improvements to the Emerald Necklace, and the pivotal role of a good MEPA scope and public review process. The ENF follows several years of study and discussion by many agencies and members of the public. The problems of the Muddy River are highly complex, and it has taken a very long time to reach the current level of understanding of those problems and of the roles that various 3measures should play in resolving them. The Conservation Commission thinks that the Muddy River Restoration project is based on a sound assessment of the current situation and supports the flood mitigation focus of the project. As discussed further below, the flood mitigation benefits of dredging need to be preserved through appropriate measures to control future deposition of solids in the river by stormwater, and the investigation of source control methods will be one of the most important parts of the EIR.

The following comments address specific matters which should be covered in your scope for the EIR.

1.) The Town of Brookline needs to ensure that flood mitigation and management be pursued to minimize property damage to the fullest extent feasible. To that effect, the phasing/sequencing of the project should be evaluated carefully. The Town has experienced severe flood conditions due to culvert inadequacies/blockages at the former Sears Parking lot. The Commission requests that the EIR consider phasing of the project to provide expeditious flood relief to Brookline. The analysis may indicate that the culverts at the former Sears Parking Lot area should be addressed following the Charlesgate portion of the project. The costs and benefits of sequencing should be outlined carefully.

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2.) The Town of Brookline recognizes the need for non-point source pollution controls to manage solids and contaminant loading into the Muddy River. Source controls, including both management practices and structural measures, will need to be recognized and implemented by various responsible parties. The EIR should estimate when, under "base case" conditions involving no source control measures other than those already in place or planned, sediment in the river would return to its present level. It has been suggested that available evidence indicate that sediment would return to present levels in less than ten years. We do not know whether this is in fact the case, but it would be consistent with our observations of the sediment islands in Leverett Pond and elsewhere, which have grown very rapidly from one year to the next in the recent past. It could be difficult to persuade key elements of the public and public bodies with control over funding that it is prudent to invest more than $40 million in dredging without implementing source control measures to extend its benefits significantly beyond a decade or so.

It is thus essential for the EIR to evaluate alternative source controls for feasibility and effectiveness; provide an appropriate level of detail concerning siting, design and phasing options; estimate costs; enable the project proponents and others to set priorities among cost-effective source controls; and specify what implementation is planned in Boston, Brookline, and/or Newton. Some stormwater quality sampling may be needed in order to determine which source controls or stormwater management approaches are most appropriate. The EIR should assess runoff from the adjacent parkland areas and from the storm drain systems separately; and develop or document suspended solids. The EIR should document stormwater systems for Boston, Newton, and Brookline, including catch basins, as well as existing or planned stormwater management programs in drainage areas; appendices should include water quality sampling results that are available from storm drain investigations. A routine monitoring program should be established to track pollution levels in the Muddy River and test fecal coliform, dissolved oxygen, pH, and total hydrocarbon levels.

3.) The report discusses various options for dredging the Muddy River. Through the EIR review process, the proponents should address the following dredging techniques, staging, and disposal issues:

- The various dredging options most appropriate for use in each area of the river with an analysis based upon factors such as, sediment quality, proximity to the Charles River, hydrologic conditions, equipment access and resuspension of sediments.
- How the dredge material will be tested, handled and transported in each section of the river.
- The expected staging sites, and how the project will deal with public safety, noise, and storm emergency procedures.
- Mitigation measures for loss of park use, inconvenience and traffic.
- Monitoring and reporting of pollution levels in dredge material, downstream conditions and wet weather events.
- What monitoring program will be used to determine impacts to downstream water bodies, and how dredging techniques will be altered should conditions be determined unacceptable.

The Boston Conservation Commission, Brookline Conservation Commission and/or various community groups may be able to recommend dewatering techniques that minimize impact on the riverfront and vegetation area.

The report recommends that Willow Pond be dredged to a depth of six feet. A previous report recommended a depth of four feet. It would be useful to have an understanding of the cost/benefit, in terms of flood capacity and water quality, of different dredge depths in the various ponds, riverway and fens. If a greater dredge depth is proposed as a means of providing more storage for sediments that will be deposited by stormwater in the future, the costs and benefits of this approach should be compared with those of dredging to a lesser depth, producing that much less sediment for disposal, and implementing source controls that enable more solids to be captured before entering the river in the future.

4.) The following aspects of the pipe/conduit cleaning and replacement should be addressed in the EIR in order to provide the public with a greater understanding of the long term and short term benefits of the conduit work. The project plan for cleaning the conduits should be clearly defined. The plan should address what work will be done to ensure that the water level in the Fens and upstream areas does not drop during low flow periods as a result of this work, the impacts expected during construction/cleaning and longevity of cleaning benefits. The surface

Town of Brookline
Conservation Commission

Stephen Burrington, Esq., Chair
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Roberta Schnoor
Elissa Tonkin

Associate:
Keith Beas
Joan Fried
Susana La
Marian La

(COMMENTS ON ENF.)

RECEIVED
APR 22 199
MEPA

April 21, 1999

Bob Durand, Secretary
Executive Office of Environmental Affairs, Attention: MEPA Office
100 Cambridge Street – 20th Floor
Boston, MA 02202
Re: Emerald necklace Restoration Project, EOEA No. 11865

Attn: Laura Rome

Dear Secretary Durand:

I am writing to submit the following comments on the environmental notification form for the Emerald Necklace Restoration Project, EOEA No. 11865, on behalf of the Brookline Conservation Commission.

We have worked with the Boston Parks and Recreation Department and Brookline Department of Public Works during their preparation of the *Emerald Necklace Environmental Improvements Master Plan (ENMP): Phase I, Environmental Notification Form*. As the project moves into the environmental review stage, we look forward to a detailed examination of various technical questions, as well as the development of a public review process. There are several particular areas that the Conservation Commission feels need detailed examination and would like to see included in the scope for the Environmental Impact Report.

At the outset, we wish to underscore both our very strong support for the Muddy River Restoration Project and the other improvements to the Emerald Necklace, and the pivotal role of a good MEPA scope and public review process. The ENF follows several years of study and discussion by many agencies and members of the public. The problems of the Muddy River are highly complex, and it has taken a very long time to reach the current level of understanding of those problems and of the roles that various 3measures should play in resolving them. The Conservation Commission thinks that the Muddy River Restoration project is based on a sound assessment of the current situation and supports the flood mitigation focus of the project. As discussed further below, the flood mitigation benefits of dredging need to be preserved through appropriate measures to control future deposition of solids in the river by stormwater, and the investigation of source control methods will be one of the most important parts of the EIR.

The following comments address specific matters which should be covered in your scope for the EIR.

1.) The Town of Brookline needs to ensure that flood mitigation and management be pursued to minimize property damage to the fullest extent feasible. To that effect, the phasing/sequencing of the project should be evaluated carefully. The Town has experienced severe flood conditions due to culvert inadequacies/blockages at the former Sears Parking lot. The Commission requests that the EIR consider phasing of the project to provide expeditious flood relief to Brookline. The analysis may indicate that the culverts at the former Sears Parking Lot area should be addressed following the Charlesgate portion of the project. The costs and benefits of sequencing should be outlined carefully.

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2.) The Town of Brookline recognizes the need for non-point source pollution controls to manage solids and contaminant loading into the Muddy River. Source controls, including both management practices and structural measures, will need to be recognized and implemented by various responsible parties. The EIR should estimate when, under "base case" conditions involving no source control measures other than those already in place or planned, sediment in the river would return to its present level. It has been suggested that available evidence indicate that sediment would return to present levels in less than ten years. We do not know whether this is in fact the case, but it would be consistent with our observations of the sediment islands in Leverett Pond and elsewhere, which have grown very rapidly from one year to the next in the recent past. It could be difficult to persuade key elements of the public and public bodies with control over funding that it is prudent to invest more than $40 million in dredging without implementing source control measures to extend its benefits significantly beyond a decade or so.

It is thus essential for the EIR to evaluate alternative source controls for feasibility and effectiveness; provide an appropriate level of detail concerning siting, design and phasing options; estimate costs; enable the project proponents and others to set priorities among cost-effective source controls; and specify what implementation is planned in Boston, Brookline, and/or Newton. Some stormwater quality sampling may be needed in order to determine which source controls or stormwater management approaches are most appropriate. The EIR should assess runoff from the adjacent parkland areas and from the storm drain systems separately; and develop or document suspended solids. The EIR should document stormwater systems for Boston, Newton, and Brookline, including catch basins, as well as existing or planned stormwater management programs in drainage areas; appendices should include water quality sampling results that are available from storm drain investigations. A routine monitoring program should be established to track pollution levels in the Muddy River and test fecal coliform, dissolved oxygen, pH, and total hydrocarbon levels.

3.) The report discusses various options for dredging the Muddy River. Through the EIR review process, the proponents should address the following dredging techniques, staging, and disposal issues:

- The various dredging options most appropriate for use in each area of the river with an analysis based upon factors such as, sediment quality, proximity to the Charles River, hydrologic conditions, equipment access and resuspension of sediments.
- How the dredge material will be tested, handled and transported in each section of the river.
- The expected staging sites, and how the project will deal with public safety, noise, and storm emergency procedures.
- Mitigation measures for loss of park use, inconvenience and traffic.
- Monitoring and reporting of pollution levels in dredge material, downstream conditions and wet weather events.
- What monitoring program will be used to determine impacts to downstream water bodies, and how dredging techniques will be altered should conditions be determined unacceptable.

The Boston Conservation Commission, Brookline Conservation Commission and/or various community groups may be able to recommend dewatering techniques that minimize impact on the riverfront and vegetation area.

The report recommends that Willow Pond be dredged to a depth of six feet. A previous report recommended a depth of four feet. It would be useful to have an understanding of the cost/benefit, in terms of flood capacity and water quality, of different dredge depths in the various ponds, riverway and fens. If a greater dredge depth is proposed as a means of providing more storage for sediments that will be deposited by stormwater in the future, the costs and benefits of this approach should be compared with those of dredging to a lesser depth, producing that much less sediment for disposal, and implementing source controls that enable more solids to be captured before entering the river in the future.

4.) The following aspects of the pipe/conduit cleaning and replacement should be addressed in the EIR in order to provide the public with a greater understanding of the long term and short term benefits of the conduit work. The project plan for cleaning the conduits should be clearly defined. The plan should address what work will be done to ensure that the water level in the Fens and upstream areas does not drop during low flow periods as a result of this work, the impacts expected during construction/cleaning and longevity of cleaning benefits. The surface

treatments to be used for conduits that are opened and treatment of the material cleaned from the conduits should also be evaluated. A final consideration should be the impact on traffic in these areas.

5.) The Muddy River Restoration project is the ideal time to take advantage of opportunities to remove pavement, restore wetlands, and enhance wildlife habitat while restoring the intent of the original design by Frederick Law Olmsted. It is important to the Commission that the EIR address impacts on wetlands, wetland replication, wildlife habitat, bank stabilization and replanting. The dredging of the Muddy River will have a significant impact on the wetlands and bank. The EIR should address how the bank edges be defined and marked on the ground, how they will be stabilized during construction, the long term stabilization techniques, the types of plantings, on going maintenance, and a contigency plan if bank failures occur.

6.) The EIR should set forth a system-wide phragmites management program that optimally analyzes the benefits of all techniques, including herbicide applications and incorporates re-vegetation. The project should prioritize the removal of phragmites stands within the Riverway and Back Bay Fens to improve flow and protect wildlife habitat. The EIR should include the anticipated monitoring and management of phragmites post-dredging.

7.) The ENMP report proposes to close Netherlands Road and the bridge to all vehicular traffic. This feature could significantly improve the park by connecting otherwise fragmented parcels and creating a much more scenic, congenial, and safe environment for park users and area residents. It would also represent an important step in creating a continuous bicycle facility from Jamaica Pond to the Fenway Area. Although the route is designated State Bicycle Route 1, it is impossible to follow or use safely in those places. The EIR should carefully consider park continuity and bicycle and pedestrian benefits, with reference to both Netherlands Road and Route 9, explaining the status of any plans by the Metropolitan District Commission to create a new bicycle crossing at Route 9 pursuant to the study completed by Bruce Campbell and Associates during the early 1990s. Closure of Netherlands Road would also have traffic and other impacts that need to be carefully studied, however, and the EIR should look closely at those impacts.

Thank-you for taking these comments into consideration.

Very truly yours,

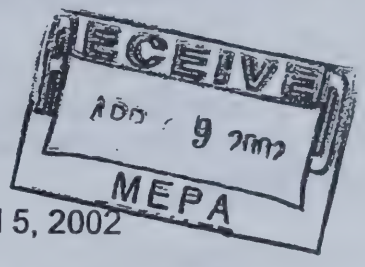
Stephen Burrington
Conservation Commission Chair

Cc: Fran Beatty, Boston Parks and Recreation Department
Jason Cortell, Cortell Associates
Tom DeMaio, Commissioner, Brookline Department of Public Works

FF
AP

FRIENDS OF THE CARLTON STREET FOOTBRIDGE
A Coalition of Brookline Neighbors and Citizens Supporting
Preservation of Olmsted's Longwood Link to the Emerald Necklace

Mr. Bob Durand, Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Mr. Arthur Pugsley, IV, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02114



April 5, 2002

RE: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, and Habitat Enhancement, and Historic Preservation EOEA No. 11865

Dear Secretary Durand:

As a member of the Citizens Advisory Committee, I have been intimately involved in the discussion of the Draft Environmental Impact Report. And as Co-chair of the Friends of the Carlton Street Footbridge, and an Emerald Necklace activist and abutter for over twenty yearrs, I am equally aware of Brookline's neglect of the Carlton Street Footbridge.

To quote the ENF, "the project will include improvements to pedestrian, bicycle, and automobile circulation in and around the parks". One park structure, which directly relates to circulation, is the Carlton Street Footbridge, an element specifically identified in the Emerald Necklace Master Plan as a high priority project for restoration.

The Bridge was closed over twenty-five years ago because it had not been maintained by Brookline.

Recent feasibility studies commissioned by Brookline have found that restoration is feasible, and that 60% of residents and park users alike would use the bridge.

Although restoration is scheduled for Phase II, a warrant article has been submitted in the Brookline warrant for the Spring, 2002 Town Meeting which would demolish the Bridge.

Demolition would be in direct contradiction of the goal of the Project as stated in the ENF "to ensure the continued restoration of Olmsted's Emerald Necklace in its entirety".

I also want to prevent steps being taken by Proponents that are efforts to dismantle the Emerald Necklace Master Plan. Therefore, I ask you to include in] FF-1

your permit language that prohibits the Proponents from taking actions that are counter to the intention of the Master Plan, without concurrence from your office and severe mitigation.

FF-1 CONT.

More specifically, I ask that you include a provision in your permit that Brookline take no action to demolish the Carlton Street Footbridge. And should such action be taken, specific penalties be identified.

I commend you for your efforts to preserve this historic park system. I support the Project enthusiastically, and believe that if the maintenance provisions are strong enough, its completion will be the realization of a park system our descendants will treasure.

Very truly yours,

Hugh Mattison

Hugh Mattison, Co-chair
Friends of the Carlton Street Footbridge

GG
AP

TOWN OF BROOKLINE

Massachusetts

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BROOKLINE PRESERVATION COMMISSION

DAVID ENGLAND, Chair
MAURICE CHILDS, Vice-Chair
SHANTIA ANDERHEGGEN
DENNIS DEWITT
WENDY ECKER
SHERI FLAGLER
GARY GROSS
ALAN COHEN, Alternate
ELTON ELPERIN, Alternate
EMILY LIVINGSTON, Alternate
WILLIAM RIZZO, Alternate
Greer Hardwicke, Staff
Roger Reed, Staff

April 5, 2002

Mr. Robert Durand, Secretary
Executive office of Environmental Affairs
Attn: MEPA Office, Arthur Pugslay
251 Causeway Street
Boston, MA 02114

RE: DEIR: Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project- EOEA #11865

Dear Secretary Durand:

Thank you for the opportunity to comment on the Muddy River Restoration Project. The staff and commissioners have worked on the restoration and enhancement of the Emerald Necklace for many years, and we look forward to further cooperation and coordination as the project unfolds.

The office is pleased that the proponents and consultants have chosen the alternative of bank to bank dredging, removal of in-stream constrictions, measures to reduce future sediment build up, and landscape restoration rather than other more invasive proposals. We feel this choice will fulfill the many goals with the least visual and physical impact on this national treasure.

While there is strong support for this project, the Commission's concerns are aimed at the landscape restoration portion of this project. We feel that a great deal of study and work has gone into the research and identification of historic plantings and present conditions and that the preliminary replantings plans have merit. We do look forward to reviewing the final planting and restoration plans in detail as the project evolves. GG-1

The Commission looks forward to continued cooperation and collaboration in the restoration and protection of this invaluable resource so it will continue to be a legacy for generations to come.

Sincerely,

Greer Hardwicke

Greer Hardwicke
Preservation Planner

Town Hall 333 Washington Street Brookline, MA 02445 Tel(617)730-2089 Fax (617)730-2040

BROOKLINE VILLAGE ACTION GROUPS

P.O. BOX 723

Brookline Village, MA 02147

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April 4, 2002

Mr. Robert Durand
Secretary Of Environmental Affairs
Attn: MEPA Office
Arthur Pugsley, EOEA File No. 11865
251 Causway Street Suite 900
Boston Massachusetts 02114

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PUBLIC COMMENT

Subject: DRAFT ENVIRONMENTAL IMPACT REPORT
PHASE 1 Muddy River Flood Control
Filed January 31 2002

Proponents: Boston Park and Recreation Dept.
and The Town Of Brookline .

Prepared for Proponents by Camp Dresser & McKee

Dear Secretary Durand,

Please accept the following as public comment on the subject DEIR and noted project.
Here we are over 100 years later,far from the horse and buggy days and still trying to make Olmsted's failed plan viable and fix the sanitary engineering mistakes, the Public Health issues, and the civil engineering problems, which he faced in his effort to clean up the "FENS" and improve the noxious wetland swamps called the Muddy River.
And now we face many new problems caused by Urbanization, Population growth, the Metro Spread and the Automobile with its paved roads.
In Olmsted,s day c1880 ..the "FENS" area was tidal salt water mud flats and creeks and the CSO drains of that time dumped raw sewage as well as storm water into the flats with every rain event.
Clever management of the Gates at Charlesgate East, allowed a flush of the "FENS" with salt water by the tides twice daily. Adding fresh water from Muddy River storm flows and water from other small streams and brooks flowing to the "FENS" sweetened the pond and by redirecting the foul Stony Brook waters the water quality was somewhat improved. Olmsted used the Gates at Fensgate 1 and 2 to control flooding in the Stony Brook, by letting overflows enter the "FENS" from the Brook as emergencies required.
Olmsted managed to make the "FENS" presentable, for a few short years.
On or about 1910 a DAM was built across the Charles River, ending Olmsted's brief success. The gravity flow and tidal flush were thus eliminated forever. Fresh water was held to a surface level behind the DAM of high tide plus two feet covering the outfall at Charlesgate and flooding the park at the site permenantly.

All of Olmsted's plan for a cleaner "FENS" was foiled when the 1910 DAM across the Charles backed up river water to create the Charles River Basin. Replaced with a state of the art structure in 1978 at Love Joy Street,the new DAM now holds the basin surface level at 7.5 MDC VD ..the "FENS" at 7.5.. the upper"FENS" Pond at 7.5 the lower Muddy River at 7.5,..the water in the main stem at Longwood Brook outfall at 7.5, the surface at the Tannery Brook outfall at 7.5 MDC VD, and Leverett Pond surface at 7.5 at Village Brook outfall and up river to the Cumberland Footbridge...all surface level at the same Vertical Datum 7,5ft above mid tide.

Thus the "FENS" and Muddy River have become a man made no flow,flat Lagoon. The surface will remain at 7.5 through the system even with the dredging proposed .Dredging will provide no new storage for any rainstorm events.

The CDM statements that the River overflowed and flooded adjacent neighborhoods is not supported by the BWSC report to the Mayor nor the Army Corps report Or the BVAG report of the Storm October 20-21 1996, or in the records of the second major storm event June 13,1998.

Lets keep it simple, in Olmsted's time the "FENS" and Muddy River flowed to the ocean as receiving waters ,with mid tide vd at 5.5 ft. The present "FENS" and Muddy R.flow to the Charles Basin vd at 13 ft. which would be two feet above high tide ;purposefully held at this high water level to create the fresh water'lake'behind the 1978 DAM called the"Charles River Basin".

The CDM Report is lacking data relating to impacts of storm runoff from the drainage area to the river system, particularly the velocity of runoff during storm events which cause fast rise of river surface in the lower reaches...methods of storm water retention applicable in this river system. The report gives no insight as to how the thousands of tons of street sand ends up in the river or how to fix the problem of non point entry at street side catch basins.

The CDM Report...(the DEIR) is an artful repeat of the Cortell Pressley..andVaness presentations earlier authored..mostly plans for landscaping the so called University and Cultural areas in the "Fens" and at the same time landscape our campuses using public funds.

The spawning Atlantic Blueback Herring are blocked from the river, and the waterfowl are fenced from the banks and grasses. Proponents maintain fuel depots in the buffer zone and are unable to control non point pollution, pathogen levels, or the culex mosquito...all seemingly covered by "Best management practices"....

In any event the country is on high alert wary of acts of war... Federal and State budgets are strained, towns and cities must re-think their priorities. We respectfully suggest this project be set aside as having no emergency standing.

Very truly yours,

Brendan J. Donovan

Brendan J. Donovan,
Director
Brookline Village Action Groups

II

HIGH STREET HILL ASSOCIATION

oard of Directors
lene Mattison
President
tsy Shure Gross
Vice-President
n Peteet
Treasurer
n McElheny
Secretary
y Aptekar
ne Beasley
b Daves
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Swaim

The Secretary of Environmental Affairs
Executive Office of Environmental Affairs
251 Causeway St.
Suite 900
Boston, MA 02114-2119

RECEIVED
APR 09 2002
EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS

March 31, 2002

Dear Secretary Durand,

The High Street Hill neighborhood abuts Olmsted Park in Brookline. The High Street Hill Association founded the Friends of Leverett Pond in 1978 and has been involved with the Emerald Necklace restoration ever since, including participation on the Brookline Olmsted master plan committee. While the High Street Hill Association wholeheartedly supports the implementation of the Emerald Necklace Master Plan, we have some areas of particular concern with the Draft Environmental Impact Report on the Muddy River Restoration Project.

Most importantly we support higher standards of maintenance for the entire park system. We believe we would not have such a serious flooding or deterioration problem if Boston, Brookline, the MDC, and the Mass Highway Department had been doing an appropriate job of maintenance over the last fifty years. Your direction in the certificates indicated that the proponents were to establish and maintain an appropriate and professionally accepted level of maintenance as a condition of funding from the Commonwealth of Massachusetts. We are concerned that since maintenance is a yearly budget item, there is no way to ensure long-term upkeep of the park system unless it is required and guaranteed as a condition of the Secretary's certificate. As taxpayers we deeply appreciate the MOU of April 1999 which provided for a local cost share waiver for the Town. It is our understanding that this waiver was granted on the condition that the Town, as joint proponent with the City of Boston, would commit to the ongoing costs of maintenance and operations of the Emerald Necklace Muddy River sections in Brookline at a level of performance specified in a maintenance and management plan included in the DEIR. We are concerned that the DEIR does not provide assurance that maintenance will be established and sustained at the professional levels of those in other Olmsted parks around the nation, i.e., Central Park, Prospect Park, and the Atlanta or Louisville Park systems. II-1

The greatest hope that long time park advocates have for appropriate maintenance is your insistence that both Boston and Brookline top elected officials and legislative bodies vote a resolution of intention to an appropriate and continuing level of funding. A continuing appropriation is what the proponents seek from the Commonwealth of Mass. and from the federal government. Similarly this is what the Commonwealth and the federal government must require of the owners of the land.

We are concerned that a high level of commitment is not expressed in the DEIR to the goal of Historic Preservation. Repeated omissions, and inconsistences with regard to this one of the five goals appear in the DEIR. II-2

Since we are very familiar with the Olmsted Park section of the Project, we have issues with the following specifics in the DEIR. While there are some references to rebuilding the shoreline of the two outer islands in Leverett Pond, there are other places in the DEIR where the only stabilization work referred to is for the one middle island. The two outer islands are badly eroding. We had a II-3

similar problem with the park shoreline years ago and gabions were built for some of the shore to prevent from further deterioration. If erosion is a serious problem, then best management practices would necessitate preventing the edges of all the islands from breaking away

Restoring the Babbling Brook will meet more than one of the project's objectives and will be a welcomed element of the Project. Rehabilitating the headwall just north of Willow Pond Rd. should be part of this work.

We are very supportive of cleaning Willow Pond which has long suffered from the leaking of underground oil from the Town's municipal garage. The path system in this area badly needs rehabilitation.

Control of the goose population is not clear in the DEIR. Our paths and turf are covered by goose droppings which ultimately contaminate the water system. Since this a regional problem, we had hoped to see a regional solution recommended.

We are supportive of the Emerald Necklace Master Plan and believe it should be implemented as written unless persuading new evidence is presented which would not support one of its recommendations. This may be the case in the situation of the placement of Daisy Ball Field. When the Master Plan was written, there was not as much information about best management practices and the harm of erosion and runoff into the waterway. In the light of instituting best management practices, we suggest further review of the negative impact, on the wetlands and water quality, of Daisy Field even in a slightly altered position further away from the water's edge.

While reference is made to regulation for the MDC Parkways, Brookline roads that abut the Park should also have the same (or higher) standards of maintenance, BMP's, and travel restrictions applied to them.

We are of course concerned with the construction process itself. Noise, smell, and possible contamination from the staging area at Leverett Pond will affect our neighborhood. We expect that the presence of an environmental monitor will minimize disruption by machine operation and trucking of dredged materials.

We suggest that the Citizens' Advisory Committee, which includes numerous individuals who have participated in the advocacy and restoration of the Emerald Necklace for over a quarter of a century, remain in place for the life of the project in its entirety; having regular meetings which allow environmental oversight of the project and staffing. As neighbors, abutters, and taxpayers we are prepared to continue our commitment to this great urban open space. We need the assurance of a strong and meaningful public participation element to this vitally important project.

We know that you cannot enforce stewardship, but we hope there are ways that you can require that the Proponents to this Project adhere to your certificates not just after the completion of the work based on a FEIR, which itself may be years off, but by showing positive intent now—instituting BMP's, conscientious grafitti removal, staff training, etc. The DEIR attributes the current poor condition of the Park to "inattention." As local advocates, we take extreme umbridge to such an explanation. We and others have paid attention to the Park for many years and have pointed out many needs to the Proponents. It is time they take ownership and *pay attention* to a national treasure within their borders.

In conclusion, we have worked for the protection, preservation and restoration of Olmsted Park. We are committed to the Emerald Necklace as an integral component of the heritage of Brookline and of the Commonwealth. We support the five goals of the Muddy River Restoration Project. We sincerely request your help in demanding the utmost respect and high standards, long-term maintenance, and appropriate levels of funding from the municipal owners for this unique environmental legacy.

Arlene Mattison

Arlene Mattison
President
High Street Hill Association

JJ
A1

Museum
of Fine Arts
Boston

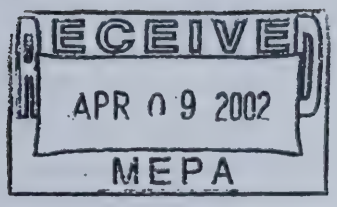
Avenue
of the Arts

465 Huntington
Avenue

Boston
Massachusetts
02115-5597

617.267.9300
www.mfa.org

April 4, 2002



Bob Durand
Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
C/o Mr. Arthur Pugsley, IV: EOEA No. 11865
251 Causeway Street, Suite 900
Boston, MA 02114

RE: Emerald Necklace Environmental Improvements and Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, EOEA No. 11865
Comments on DEIR

Dear Mr. Durand:

I am writing to express the Museum of Fine Arts' support of the Muddy River Restoration Project as a part of the Emerald Necklace Master Plan. The Museum is in favor of the immediate implementation of this Project, as described in the Draft Environmental Impact Report.

The Museum especially supports the Project's primary goal of flood control by dredging the Muddy River. Since 1996, we have spent $1,104,000 mitigating damage caused by Muddy River floods to basement storage collections, gallery spaces, and building mechanical systems. Not only is there a current risk to collections and the building, but the Museum's recently filed Master Plan envisions development of property abutting the Project's boundaries. The Museum sees the Muddy River Project as a way to safeguard and protect this intended investment. JJ-1

The rehabilitation of the Muddy River and its landscape would create an inviting and important experience for Museum visitors, visitors to the Fenway, tourists, and citizens. We look forward to the improvements.

Sincerely,

John S. Stanley
Deputy Director for Operations

cc: Stan Ivan, Chief Engineer, Boston Parks and Recreation Department
Erin Chute, Brookline Director of Parks and Open Space
John Burckhardt, PE, Parsons Brinckerhoff, c/o Boston Parks and Recreation Department
Bruce Conklin, PE, Camp, Dresser and McKee Inc.
Samantha Overton Bussel, Deputy Commissioner for Policy, Metropolitan District Commission
John Sullivan, Chief Engineer, Boston Water and Sewer Commission
Laura Rome, Executive Office of Environmental Affairs
Richard Thibodeau, Chief Planner, Executive Office of Environmental Affairs
Loraine Della Porta, Massachusetts Office of Dispute Resolution
Emerald Necklace Muddy River CAC, c/o Massachusetts Office of Dispute Resolution

KK

AP

THE FENWAY
ALLIANCE

April 8, 2002

RECEIVED
APR 10 2002
EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS

RECEIVED
APR 10 2002
MEPA

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

Dear Secretary Durand:

I am writing to you on behalf of the Fenway Alliance, Inc. in wholehearted support of the Muddy River Restoration Project. Founded in 1977, The Fenway Alliance, is an 18-member consortium of arts, culture and academic organizations working collaboratively to enhance the cultural, physical, natural and economic environment of the Fenway/Back Bay area of Boston. Collectively, we represent a broad range of major cultural, academic, religious and cultural organizations in the Back Bay (Please see attachment for a list of our members.) The institutions that comprise The Fenway Alliance employ over 10,000 people and our academic members educate approximately 36,000 students per year. Annually, over two million tourists and visitors come to this area to enjoy its cultural offerings and natural beauty. *This past fiscal year, The Museum of Fine Arts--a member organization—had 1,308,886 visitors, alone.*

Given the number of organizations the Fenway Alliance represents *and* the sheer number of people we support, educate, employ and entertain on a yearly basis, we have a very strong interest in seeing the long overdue Muddy River Restoration Project start as soon as possible. Many of our institutions have already experienced flooding problems that can reach a crisis point for our members in terms of the thousands of students they must protect as well as priceless works of Art. KK-1

The Draft Environmental Impact Report (DEIR) is a comprehensive, well-researched document that clearly demonstrates that this project will not only alleviate severe flooding, but is an environmentally sound course. It will increase wildlife habitats and restore the natural beauty and social and recreational use of the currently under-utilized Emerald Necklace Parklands. We, the 18 members of the Fenway Alliance, are very much invested in seeing this jewel of a park restored to its former grandeur.

To avoid a future flooding crisis in this area, it is critical that this project begin as soon as possible. Dredging of Charlesgate should be the first priority. The remainder of the project should be implemented as soon as funding is secured. The Fenway Alliance truly appreciates your interest in this project, and awaits your positive response.

Sincerely,

Kelly Brilliant

Kelly Brilliant
Executive Director, The Fenway Alliance

Members of The Fenway Alliance Inc.

- *Berklee College of Music*
- *Boston Symphony Orchestra*
- *Emmanuel College*
- *The First Church of Christ, Scientist*
- *Forsyth Institute*
- *Harvard University School of Public Health*
- *Huntington Theatre Company*
- *Isabella Stewart Gardner Museum*
- *Massachusetts College of Art*
- *The Mary Baker Eddy Library for the Betterment of Humanity*
- *Massachusetts College of Pharmacy and Health Sciences*
- *Museum of Fine Arts*
- *New England Conservatory of Music*
- *Northeastern University*
- *Simmons College*
- *Wheelock College*
- *Wentworth Institute of Technology*
- *YMCA of Greater Boston*

LL

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Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

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APR 11 2002
MEPA

April 11, 2002

Secretary Robert Durand
Executive Office of Environmental Affairs
Attention: MEPA Office-Arthur Pugsley, EOEA #11865
251 Causeway Street
Boston, MA 02114

Re: DEIR: Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project – EOEA #11865

Dear Secretary Durand:

The Boston Water and Sewer Commission (Commission or BWSC) has reviewed the Draft Environmental Impact Report (DEIR) for the above referenced project. The proposed project involves a multidisciplinary approach to improving the Muddy River watershed and the adjacent parklands, referred to as the Emerald Necklace located in Boston, Brookline and Newton. The project involves measures to increase the hydraulic capacity of the river and implementation of stormwater Best Management Practices (BMPs) in the watershed to improve stormwater and receiving water quality.

The Commission has participated in numerous meetings and discussions relative to the Phase I Program, the DEIR and the Muddy River in general. The Commission strongly supports the recommended program described in the DEIR, and although there are some issues and details to be resolved, the Commission believes these can be worked out during the preparation of the FEIR and as the program progresses.

The Commission has the following comments regarding the proposed project:

Project Phasing

The Commission believes that the Charlesgate portion of Phase I should be allowed to proceed without further delay. Hydraulic modeling performed for the Executive Office of Environmental Affairs and the U.S. Army Corps of Engineers has shown that dredging of sediment and debris from the Charlesgate area and removing the weir obstruction under the Ipswich Street culvert will improve the flow capacity of the river and prevent upstream flooding during large storm events. Funding has already been committed to completing the Charlesgate work, and future funding for the subsequent phases of the

Muddy River project may be compromised if the Charlesgate phase is not substantially completed by the end of 2002. Without this essential first step, Boston and Brookline will continue to face the risk of potential flooding in the upstream sections of the Muddy River.

Ownership and Maintenance of Culverts

The recommended plan includes daylighting of existing culverts at the Fens Bridge and the former Sears parking lot, construction of a new arch culvert while maintaining the existing twin 72 inch diameter pipelines under The Riverway, and construction of a new arch culvert under Brookline Avenue at the Sears rotary with an overflow to the Muddy River Conduit.

The owner of the existing culverts between The Riverway and the Fens Bridge is not clearly identified in the DEIR. The culverts are an integral part of the Muddy River system, which in Boston is owned by the City of Boston and maintained by the Boston Parks and Recreation Department (BPRD). As such, the Commission believes that inspection and maintenance of the existing culverts are the responsibility of the BPRD. However, this needs to be confirmed and clearly stated in the FEIR. The agency that will own the new culverts when they are constructed also must be clearly identified in the FEIR.

Under Section 8.7 on page 8-31 it states: "*Existing culverts in the project area are maintained by BWSC, Brookline Public Works Department and the MDC. The proposed project improvements will not change this arrangement...*" In Section 8.8, page 8-34 it is further stated that the BPRD would report maintenance needs to BWSC. This implies that the Commission will be responsible for the maintenance of the new culverts. While the Commission has periodically assisted the BPRD by clearing debris from trash grates located at the openings of the culverts, it has not been established that the Commission will continue to perform such maintenance. This issue must be addressed in the FEIR.

LL-1

NPDES Stormwater Permit

Discharges to the Boston Water and Sewer Commission's (Commission) separate storm drainage system are regulated under the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Permit Regulations. The Commission's NPDES Stormwater Permit was issued by EPA and the Massachusetts Department of Environmental Protection (DEP) in September 1999, and became effective in October 1999. The Permit term is five years. Under the Permit the Commission is required to develop and implement stormwater pollution prevention and management programs which are designed to reduce, to the maximum extent practicable the discharge of pollutants to municipal storm drainage system.

The Commission's NPDES Stormwater Permit provides an environmental framework through which future BWSC stormwater programs can be managed. However, it should be noted in the FEIR that many of the programs and activities required under the permit were already being implemented by the Commission before the permit was issued. These include the Commission's Sewer Use Regulations and Site Plan Review Requirements, the Illegal Connection Remediation Program, sewer separation programs and sewer, drain and catch basin cleaning and preventive maintenance programs. The Commission believes these programs and activities have already resulted in substantial improvements to receiving waters in Boston, including the Muddy River. LL-2

Illegal Connections

The Boston Water and Sewer Commission has a very aggressive illegal connection remediation program which has been in place since the early 1980s. Through this program the Commission has eliminated 28 illegal connections in the Muddy River watershed. Elimination of the illegal connections has resulted in the removal of an estimated 80,000 gallons per day from the drainage system and the Muddy River.

Section 2, pg. 2-102 it states: *"Thirteen new illegal connections were found in 2000 and are being added to Commission contracts for correction."* The Commission is aware of only four (4) illegal sanitary sewer connections to drains that are tributary to the Muddy River, only one of which was identified in 2000. Three of the illegal connections are included in a Commission contract for correction in 2002. The fourth is still under investigation to determine the source of the sanitary sewage. A broken sanitary sewer is suspected. LL-3

On Page 4-76 it is stated: *"There has been some intermunicipal connections from Boston to Brookline where the sewers were not separated and the combined flows discharged to the drainage system."* The Commission is not aware of any interconnections between sewers and drains in the areas referred to (Cleveland Circle and Bartlett Crescent). These areas are served by separate sewers and storm drains. If by "intermunicipal connections" the writer means illegal connections, then these are being addressed by the Commission as described above. LL-4

Page 4-44 states: "*Many of the cross connections between sanitary sewers and combined sewers in the Stony Brook and Emmanuel College drainage systems have been corrected and sewer separation work is continuing.*" The drainage area tributary to the Emmanuel College is served entirely by separate sewers and storm drains. There are no CSOs in this area. If by "cross connections" the writer means illegal connections (sanitary sewer connections to storm drains), then the Commission is not aware of any illegal connections in the drainage area tributary to the Emmanuel College outfall. Illegal connections to the separated portions of the Stony Brook Conduit are being addressed as described below. Separation of combined sewers tributary to the Stony Brook Conduit is ongoing and is expected to be completed in 2006. LL-5

In the FEIR it should be noted that the Commission has an effective means of preventing new illegal connections from being constructed. Under the Commission's Sewer Use Regulations the connection of a building sanitary sewer to a storm drain (an illegal connection) is prohibited and carries a fine of up to $5,000 per day of violation. To ensure that a proper connection is made, the Commission requires that all new, repaired or modified service connections be inspected by a Commission inspector before the services are covered over by the contractor. Failure to have the connection inspected before covering carries a fine of up to $750 per day. In addition, all new building sewer and building storm drains connections are dye tested by a Commission inspector to confirm proper connection. This is done by placing colored dye in a toilet, sink or downspout of the building, flushing with water, then inspecting the sewer and drain manholes in the street to confirm that the dye appears in the proper pipe. LL-6

Improvements to the Back Bay Fens Gatehouses

An explanation of the Stony Brook Conduit, the Old Stony Brook Conduit and the operation of the Back Bay Fens Gatehouses is provided in the DEIR on page 4-6. The conduits and gatehouses are owned and maintained by the Boston Water and Sewer Commission. The Commission believes that a clearer, more detailed explanation of these systems and their relationship to the Muddy River should be provided in the FEIR. LL-7

The FEIR should make it clear that flows from the Stony Brook Conduit and Gatehouse No.1 (GH1) discharge to the Fens pond only during very large storm events, when the flows may overtop the sluice gates, or when Commission staff open a gate to prevent upstream flooding. Storms of this magnitude occur only a few times a year, generally during the spring and fall rainy seasons. LL-8

It should also be made clear in the FEIR that Gatehouse No. 2 (GH2) is no longer operational. The relatively small flows from the Old Stony Brook Conduit pass by the gatehouse and on to the Boston Marginal Conduit and the MWRA's Prison Point CSO Facility. The MWRA's Prison Point CSO Facility pumps dry weather flows to the Deer Island Wastewater Treatment Facility and wet weather flows to the Charles River. The wet weather flows are screened and disinfected before being discharged. LL-9

In the fall of 2002, the Commission will begin construction to substantially improve the Back Bay Fens Gatehouses. Total project cost, including planning, design and construction is estimated at $2.6 million. Three of the existing sluice gates in GH1 will be replaced with new cast iron sluice gates. The fourth gate in GH1 and all three gates in GH2 will be sealed in place to act as fixed weirs in the unlikely event overflows are necessary.

At the bottom of page 4-6 it is stated that repair of the three sluice gates in GH1 will allow more flow into the Muddy River. This is not technically accurate. At the present time only one of the four gates in GH1 is operable. Operation of the 8-ton sluice gate requires the use of portable hydraulic equipment, which must be brought to the site each time a major storm event is predicted. This is difficult and time consuming. The primary LL-10

purpose of the construction is to make opening the gates in GH1 quicker and less labor intensive. Following construction the Commission will continue to open one gate in the GH1 only when a very large and intense storm event is forecasted. Replacement of the other two gates in GH1 is intended only to provide backup service in the event that the primary gate must be taken out of service. Therefore, flows from the Stony Brook to the Fens will not technically increase, rather they will be storm dependent, as they are now. LL-10 CONT.

Under the Gatehouse Improvement Project, the exteriors of the gatehouse buildings will be restored in keeping with their historic and architectural significance. The deteriorated roofs, windows, doors and floors will be replaced in kind. The area in the vicinity of the gatehouses will be regraded to stabilize the ground cover and eliminate ponding and low points in the path system. The existing paths will be replaced with stonedust paths. Lawn areas will be loamed and seeded, new shrubs will be planted and existing trees and shrubs will be pruned. LL-11

The Commission's Gatehouse Improvement Project will likely be completed before the Muddy River Restoration project in the Back Bay Fens is expected to begin. Therefore, the proposed Back Bay Fens improvements must be designed and implemented so as to avoid negative impacts to the work completed by the Commission.

Stony Brook Conduit

During dry weather the Stony Brook Conduit (SBC) conveys brook flow from the separated areas of the drainage area located in Jamaica Plain, Roslindale, West Roxbury and Hyde Park. During wet weather, combined sewer overflows from the lower 2,100 acre area of the Stony Brook mix with the brook flow and stormwater from the upper drainage area. Due to the closed gates in GH1, wet and dry weather flows are normally directed to the Charles River via the Massachusetts Water Resources Authority's Charlesgate East Gatehouse. As described above, discharges from the SBC to the Fens occur only if the flow is large enough to overtop the gates in GH1, or when gates in GH1 are opened by Commission staff. It should be emphasized in the FEIR that the Commission is committed to several projects that will that will not only reduce the potential for flooding in the Stony Brook System, but will also significantly improve the quality of the discharges from the Stony Brook Conduit. These programs are described briefly below.

SBC Cleaning: The cleaning of the SBC was completed in the spring of 2002. The purpose of the cleaning was to reduce the frequency of flooding from significant rainfall events by restoring the hydraulic capacity of the conduit and providing additional in-system capacity. Total cost of the project was $5.5 million. LL-12

SBC Sewer Separation: Separation of the combined sewers in the areas tributary to the SBC will eliminate CSO discharges to the SBC. When the sewer separation project is completed in 2006, the SBC will convey only dry weather brook flow and stormwater. Total estimated cost for SBC sewer separation project is $35.2 million.

Elimination of illegals in SBC: Since January 1999, a consultant to the Commission has been conducting a program to identify illegal sanitary connections to storm drains in the separated area served by the SBC. As of the end of 2001, a total of 134 illegal sanitary sewer connections to storm drains had been identified and remediated under the Stony Brook Conduit Illegal Connection Investigation. This has resulted in the removal of an estimated 52,977 gallons per day of wastewater from the drainage system and receiving waters. This program is scheduled to conclude in 2002. Total cost for the Stony Brook Conduit Illegal Connection Investigation Program, including the cost to correct the illegal connections is estimated at $1.6 million.

LL-12 CONT.

Catch Basin Cleaning and Preventive Maintenance

All of the Commission's catch basins, including those tributary to the Stony Brook Conduit and the Muddy River, are included in the Commission's Catch Basin Preventive Maintenance Program which is described in Section 2 of the DEIR (page 2-99). This program will enable the Commission to develop a more effective catch basin cleaning program and to determine where more frequent cleaning of catch basins is warranted. Total cost for the Catch Basin Preventive Maintenance program is estimated at $5.3 million for the 3-year program, including inspections, catch basin cleaning and hood and trap replacement and development of the database and map.

It is estimated that there are roughly 8,000 Commission owned catch basins in drainage areas tributary to the Muddy River, including those in the Stony Brook Conduit watershed. Cleaning of all the Commission's catch basins was completed in early 2002, with the exception of those that were blocked by parked cars, construction or were otherwise inaccessible. Attempts to clean the previously inaccessible catch basins will be made in 2002.

It should be noted that the Commission's Catch Basin Maintenance program covers only catch basins owned by the Commission. Catch basins located on private property and on roads in the Muddy River watershed are not under the jurisdiction of the Commission. These include catch basins located in large private parking lots and on MDC roads such as The Riverway, Jamaicaway, Fenway, Park Drive and Agassiz Road.

Particle Separators

The Commission evaluates whether installation of particle separators is feasible and appropriate when designing storm drain capital improvement projects. The Commission currently owns and maintains 13 particle separators, two of which are located within the Muddy River Watershed (Fenwood Road and Perkins Street adjacent to Jamaica Pond). Both these particle separators were inspected in 2001 and neither required cleaning.

LL-13

Under the recommended plan in Section 5 it is stated that the BWSC would be responsible for the design and construction of particle separators on the Emmanuel College and the Daisy Field drains (pages 5-73, 5-75 and 5-77). Construction of a third particle separator in the Back Bay Fens area by the Commission is also suggested (page

5-73), although a specific location is not identified. Since the particle separators are being recommended as part of the Muddy River Restoration, and will likely be located on park or private property, the Commission believes that the cost of the particle separators should be covered under Muddy River Restoration funds. The issues of design, construction and ownership of the particle separators should be confirmed before the FEIR is finalized. LL-13 CONT.

Under Section 5.7.2, page 5-72 it is recommended that a pilot program be carried out to help determine design and site selection before the particle separators are designed and constructed. The Commission concurs with this recommendation, although we believe the pilot should go a step further and include an evaluation of as to whether the proposed particle separators are appropriate and will be effective in the locations specified. The FEIR should also identify specifically which agency(ies) will be responsible for implementing the Particle Separator Pilot Program and the funding source. LL-14

Daisy Field Staging Area

It appears from the DEIR that the proposed location for the Daisy Field Staging Area (pages 5-51 and 6-71) is directly over a Commission storm drain (18G233). The Commission prefers that an alternative staging area be selected. However, if no alternative is available, the Commission will require the selected construction contractor to take precautions to ensure that negative impacts to the storm drain do not occur. To document the condition of the storm drain, the Commission will require the construction contractor to televise the pipe before commencing construction and again after construction is completed. The contractor will be held responsible for any damage caused to the drain by the construction. LL-15 The location of the Commission's storm drain, from The Riverway to Leverett Pond should be shown on all contract plans, and it should be clearly stated in all contract documents that driving or parking of heavy equipment over the storm drain must be avoided. LL-16

On page 6-90 it states: *"The Daisy Field staging area will be used for the dredging of Willow Pond. A 6-8 inch pipeline will be placed between the two locations through which the dredged materials will be pumped."* The location of the proposed pipeline is not shown in the DEIR. The Commission is concerned that the proposed pipeline will negatively impact the Commission's existing drain in Daisy Field. Plans for the proposed dredging pipeline must be provided to the Commission for review and comment before they are finalized. LL-17

Other Comments

In Section 5, page 5-72, it is stated: *"The BWSC stormwater regulations are currently adequate under the oversight of the EPA and DEP."* However, very little discussion of the Commission's regulations is provided in the DEIR. This leaves the readers with the impression that the Commission may not be doing enough in the watershed to manage stormwater and to improve the quality of stormwater discharges. This should be LL-18

remedied in the FEIR. Attached is a brief explanation of Commission regulations and requirements that were not described in the DEIR. LL-18 CONT.

Conclusion

The Commission believes that the best available technology is already being applied relative to stormwater BMPs in the Muddy River. Since many of the BMPs have only been in effect for a short time or are still being implemented, it may be several more years before a corresponding improvement in the water quality of the Muddy River becomes apparent. LL-19

The Commission is spending or has spent almost $4.6 million in programs that directly benefit the Muddy River and its watershed, not including the $5.3 million for the Catch Basin Preventive Maintenance Program, which will improve catch basin performance system-wide. The Commission believes this investment will be protected and enhanced with the implementation of the proposed Phase 1, Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project.

Yours truly,

John P. Sullivan, Jr., P.E.
Chief Engineer

cc: J. Burckardt
S. Ivan
B. Conklin

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

Boston Water and Sewer Commission Regulations not described in the DEIR

Sewer Use Regulations: The majority of the Commission's stormwater management controls are enforced through its Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains (the Sewer Use Regulations). The Sewer Use Regulations were adopted in 1983 and amended in 1989. They were amended again in 1998 to strengthen and clarify the requirements, particularly as they pertain to stormwater discharges. In 1998, the Commission also amended its Penalty Schedule by adding and increasing the fines for several Sewer Use Regulation violations.

General Service Applications and Site Plan Requirements: The Commission requires that a General Service Application and a site plan be submitted for every new or reconstructed water, sewer or storm drain service connection. The site plan must be approved by the Commission's Chief Engineer before construction may begin. The site plan will not be approved unless it complies with the Commission's Site Plan Requirements and Sewer Use Regulations.

Drain Layers License: All building sewer and building storm drain installation, repair or maintenance work must be performed by a drain layer who possesses a Drain Layers License issued by the Commission. To obtain a Drain Layers License, persons must pass a written test given by the Commission's Engineering Customer Services Division. Test questions are typically drawn from the requirements provided in the Commission's Sewer Use Regulations, including those pertaining to illegal sanitary connections to storm drains, non-stormwater discharges, requirements for new construction and catch basin dumping. The Drain Layers Licensing requirement provides the opportunity to educate drain layers in Boston as to the Commission's rules and regulations, including those pertaining to stormwater.

Controls for New Parking Lots In order to prevent oil, grease and sediments from discharging to open waterways, the Commission requires that developers install particle separators on all newly constructed storm drains that serve outdoor paved areas of 7,500 square feet in size or greater. The Commission may require particle separators on existing storm drains from existing outdoor parking areas, where appropriate. This requirement has been in place since 1992.

Parking lot particle separators are typically located on private property and therefore, their maintenance is the responsibility of the property owner. Design criteria for particle separators are set forth in the Commission's *Guidelines for Developers for the Installation, Operation and Maintenance of Grit and Oil Separators*, a copy of which is included in the Commission's Requirements for Site Plans.

Drainage Discharge Permits: The Commission requires a Drainage Discharge Permit for all non-stormwater discharges to its drainage system, including construction site dewatering, permanent subsurface drainage, non-contact cooling water, non-contact industrial process water, and waters associated with hydrological testing, groundwater treatment/remediation, and removal and installation of an underground storage tank. The Commission may deny or condition a dewatering permit to prevent contaminated drainage from entering the sewer or drainage system. Failure to obtain a Drainage Discharge Permit carries a fine of up to $1,000 a day under the Commission's Sewer Use Regulations.

Infiltration/Inflow Control: Newly constructed and substantially renovated buildings must be constructed so as to minimize inflow and infiltration to the Commission's wastewater system. Stormwater, including roof runoff, must be kept separate from sanitary sewage at all times, and the connection of a building storm drain to a sanitary sewer is prohibited.

On-site Retention of Stormwater: Under the Commission's Site Plan Requirements and Sewer Use Regulations, developers of new projects are required to evaluate the feasibilty of retaining stormwater on-site. On-site retainage of stormwater is required whenever site conditions permit as determined by the Commission. On-site retention aids in controlling the rate, volume and quality of stormwater discharged to the Commission's storm drainage system.

Fuel Dispensing Areas: Under the Commission's Requirements for Site Plans, stormwater runoff from fuel dispensing areas not covered by a canopy or other type of roof or enclosure must discharge through a particle separator or an approved oil trap before discharging to the Commission's storm drainage system or receiving waters.

Catch Basin Castings: Commission contractors are required to install metal castings with a "Don't Dump" message on sidewalks near new or reconstructed catch basins. The contractor purchases the plates directly from the vendor or they may be supplied by the Commission.

Environmental Impact Reviews: Through comment letters submitted to the MEPA Unit and the Boston Redevelopment Authority in response to Environmental Notification Forms and Environmental Impact Reports, the Commission requests that property developers install permanent "Don't Dump" catch basin castings next to any new catch basin installed as part of their project.

MM
AP

YMCA of Greater Boston
® Keeping Families Strong

John M. Ferrell
President

02-04-11 P03:07 IN

April 9, 2002

RECEIVED
APR 12 2002
MEPA

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, Massachusetts 02114

Dear Secretary Durand:

I write in support of the Muddy River Restoration Project because of its impact on our Huntington Avenue YMCA, which has been a Fenway institution since 1912.

This YMCA has experienced very serious flooding problems over the years, which has cost many thousands of dollars and major disruption for our members, residents, and children who are involved in many programs in this facility. One flood in the mid-nineties resulted in an accumulation of 22 feet of water in our basement and sub-basement.

The Draft Environmental Impact Report is a well-researched document that clearly demonstrates that this proposed project would be an environmentally sound approach to alleviate severe flooding. It would also increase wildlife habitats and restore the natural beauty and social/recreational use of the currently under-utilized Emerald Necklace Parklands. MM-1

It is critical that this project begin as soon as possible to avoid future flooding in this area. Dredging of Charlesgate should be the first priority, with the remainder of the project to be completed when funding is secured.

I am pleased to hear that you are interested in this project, and urge you to implement it as soon as possible.

Sincerely,

John M. Ferrell
President

tropolitan Offices
Huntington Avenue, Boston, MA 02115-5019 • 617-536-6950 • 617-536-3240 Fax • www.ymcaboston.org
nches
k Achievers • Burbank • Camping Services • Central • Charles River • Dorchester • East Boston • Education and Training •
e Park • Metropolitan Office • North Suburban • Oak Square • Roxbury • Walpole • Waltham • Wang • West Roxbury/Roslindale

United Way

NN

Pugsley, Arthur (ENV)

From: ShureGross, Betsy (ENV)
Sent: Friday, March 08, 2002 6:33 PM
To: Pugsley, Arthur (ENV)
Subject: FW: letter to TAB

FYI

-----Original Message-----
From: Charles Beveridge [mailto:cbever@american.edu]
Sent: Friday, March 08, 2002 3:07 PM
To: HMattison@aol.com
Subject: letter to TAB

March 8, 2002

To the Editor of the Brookline TAB:

I would like to provide a statement, based on my research as series editor of the Frederick Law Olmsted Papers, of the significance of the Carlton Street Footbridge in Olmsted's plan for the linear park that he planned for the Muddy River section of the Emerald Necklace. NN-1

First, it is important to note that Olmsted considered the "Emerald Necklace" to be a metropolitan resource. He intended to utilize the full recreational and landscape potential of the Muddy River valley for the benefit of citizens of both the Town of Brookline and the City of Boston.

In his plan, Olmsted made a special effort to provide access from Brookline in the long stretch where the Boston & Albany Railroad tracks formed a barrier to the public space along the Muddy River. Accordingly, he carefully integrated the Carlton Street entrance into the circulation system and landscape of the park he was designing. An entrance at that point appears in each plan that he drew up for the park. In his final plan, a separate path curved away from the main path to the footbridge, and a mass of low shrubs in the 150-foot-long crescent between the two paths provided a dense, green foreground over which to view the river at its widest point. This vista was framed by the two islands that Olmsted created there.

Only two other pedestrian entrances to the park between the Back Bay Fens and Jamaica Pond received similar care and attention to design. One is also in Brookline, at the Allerton Overlook at Leverett Pond; the other is the entrance on the Boston side, 250 yards downstream from Longwood Bridge, with a stone overlook shelter that provides views across the same wide, island section of the river as does the Carlton Street footbridge. Recent extensive renovation programs have greatly improved the appearance and usefulness of both of these entrances.

Clearly, the Carlton Street entrance to the Muddy River park in its present condition is a crucial "missing link" in the Emerald Necklace, a feature that Olmsted carefully designed to provide both convenient access and landscape amenity for many users of his park. NN-2

Sincerely,

Charles E. Beveridge
Series Editor, The Frederick Law Olmsted Papers
American University
Washington, DC

00
AP

New England Conservatory
Founded 1867

Daniel Steiner, *President*

April 10, 2002

02-04-12 P03:58 IN

Mr. Robert Durand
Secretary of Environmental Affairs
Massachusetts Executive Office of Environmental Affairs
251 Causeway Street
Boston MA 02114

RECEIVED
APR 16 2002
MEPA

Re: Muddy River Restoration Project

Dear Secretary Durand:

I write to express my strong support for the Muddy River Restoration Project. Our 700 students live and study in a concrete urban environment. The parkland adjacent to the Muddy River can be a green oasis for them and a respite from the demands made by the requirements of studying and performing. However, the current condition of the river makes the long-neglected riverbanks an unwelcoming component of the famed Emerald Necklace.

As a member of the Fenway Alliance I know of the problems and damage created in some of our sister institutions by the flooding that regularly occurs because the Muddy River is not properly dredged. And the riverbanks cannot be restored until the dredging is completed.

I urge you to approve the Draft Environmental Impact Report-before you and move this much-delayed project closer to implementation.

Sincerely,

cc: Fenway Alliance

290 Huntington Avenue • Boston, MA 02115 • (617) 585-1200 • fax (617) 585-1205
dsteiner@newenglandconservatory.edu • www.newenglandconservatory.edu

PP
AP

HARVARD SCHOOL OF PUBLIC HEALTH

Operations Office

RECEIVED

APR 16 2002

MEPA

April 9, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

02-04-12 P03:55 IN

Dear Secretary Durand:

I am writing to you on behalf of the Harvard School of Public Health and The Fenway Alliance, Inc. in wholehearted support of the Muddy River Restoration Project. Founded in 1977, The Fenway Alliance, is an 18-member consortium of arts, culture and academic organizations working collaboratively to enhance the cultural, physical, natural and economic environment of the Fenway/ Back Bay area of Boston. Collectively, we represent a broad range of major cultural, academic, religious and cultural organizations in the Back Bay (Please see attachment for a list of our members). The institutions that comprise The Fenway Alliance employ over 10,000 people and our academic members educate approximately 36,000 students per year. Annually, over two million tourists and visitors come to this area to enjoy its cultural offerings and natural beauty. *This past fiscal year, The Museum of Fine Arts – a member organization – had 1,308,886 visitors, alone.*

Given the number of organizations The Fenway Alliance represents *and* the sheer number of people we support, educate, employ and entertain on a yearly basis, we have a very strong interest in seeing the long overdue Muddy River Restoration Project start as soon as possible. Many of our institutions have already experienced flooding problems that can reach a crisis point for our members in terms of the thousands of students they must protect as well as priceless works of Art.

The Draft Environmental Impact Report (DEIR) is a comprehensive, well-researched document that clearly demonstrates that this project will not only alleviate sever flooding, but is an environmentally sound course. It will increase wildlife habitats and restore the natural beauty and social and recreational use of the currently under-utilized Emerald Necklace Parklands. We, 18 members of the Fenway Alliance, are very much invested in seeing this jewel of a park restored to its former grandeur.

To avoid a future flooding crisis in this area, it is critical that this project begin as soon as possible. Dredging of Charlesgate should be the first priority. The remainder of the project should be implemented as soon as funding is secured. The Fenway Alliance truly appreciates your interest in this project, and awaits your positive response.

Sincerely,

Paul Riccardi
Dean for Administration and Operations
Harvard School of Public Health

677 Huntington Avenue Boston, Massachusetts 02115 617 432-1152/1153 Fax: 617 432-4998

Members of the Fenway Alliance Inc.

- *Berklee College of Music*
- *Boston Symphony Orchestra*
- *Emmanuel College*
- *The First Church if Christ, Scientist*
- *Forsyth Institute*
- *Harvard School of Public Health*
- *Huntington Theatre Company*
- *Isabella Stewart Gardner Museum*
- *Massachusetts College of Art*
- *The Mary Baker Eddy Library for the Betterment of Humanity*
- *Massachusetts College of Pharmacy and Health Sciences*
- *Museum of Fine Arts*
- *New England Conservatory of Music*
- *Northeastern University*
- *Simmons College*
- *Wheelock College*
- *Wentworth Institute of Technology*
- *YMCA of Greater Boston*

QQ

mass art
massachusetts college of art 621 huntington avenue boston ma 02115 617.879.7000

president's office

AP

RECEIVED
APR 16 2002
MEPA

02-04-12 P04:01 IN

April 9, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

Dear Secretary Durand:

As President of Massachusetts College of Art, I write to support the Muddy River Restoration Project. Mass Art is also an active member of the Fenway Alliance, an 18-member consortium of art, cultural and academic organization.

As a college, we have experienced property damage and dislocation of our students during past Muddy River flooding episodes. The Draft Environmental Impact Report (DEIR) demonstrates that this project will not only alleviate severe flooding, but is an environmentally sound course. It will restore the natural beauty and social and recreational use of the currently underutilized Emerald Necklace Parklands and enhance the important non-profit institutions at their border. We are very committed in seeing this jewel of a park restored to its former grandeur.

To avoid a future flooding crisis in this area, it is critical that this project begin as soon as possible. Dredging of Charlesgate should be the first priority. We urge that the remainder of the project be implemented as soon as funding is secured.
Mass College of Art truly appreciates your interest in this project, and awaits your positive response.

Sincerely,

Kay Sloan

Katherine Sloan
President

RR AP

Boston Redevelopment Authority

Boston's Planning & Economic Development Office

Thomas M. Menino, *Mayor*
Clarence J. Jones, *Chairman*
Mark Maloney, *Director*

One City Hall Square
Boston, MA 02201-1007
Tel 617-722-4300
Fax 617-248-1937

APR 8 2002

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APR 10 2002
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

RECEIVED
APR 10 2002
MEPA

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, 9th Floor
Boston, MA 02114-2150

Attention: MEPA Unit

RE: EOEA #11865 – Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project/Draft Environmental Impact Report

Dear Secretary Durand:

Pursuant to regulations implementing M.G.L., Chapter 30, Sections 62-62H, the Boston Redevelopment Authority (BRA) submits the following comments with regard to the above-referenced Draft Environmental Impact Report.

The proposed Muddy River Rehabilitation project involves the first phase of a comprehensive program of rehabilitation of the Emerald Necklace, the oldest park system in the United States and the largest in the City of Boston. The proposed project also includes the cleanup and restoration of the Muddy River, which runs through much of this essentially linear park. Designed by the noted landscape architect Frederick Law Olmsted, Sr., and constructed between 1878 and 1895, the Emerald Necklace, according to the Vision Statement introducing the Draft Environmental Impact Report (DEIR), is "an internationally renowned 19th century linear park system and a nationally significant work of landscape architecture, sanitary engineering, and city planning."

This notable parkland, which is listed on the National Register of Historic Places, stretches more than six miles from Franklin Park in Dorchester to the Back Bay Fens and the Charles River. The Phase I project, which is the initial phase of the Emerald Necklace Parks Master Plan first prepared in 1989 and updated in 2001, encompasses four separate sections of the parkway – Charlesgate, extending from Boylston Street to the Charles River and containing the last portion of the Muddy River before it empties into the Charles; the Back Bay Fens, extending from the Richardson Bridge (Boylston Street) to the new Landmark Center at Brookline Avenue; the Riverway, extending upstream along the Muddy River from the Sears Rotary to Route 9; and Olmsted Park with its three ponds (Leverett, Willow, and Ward's), extending from Route 9 to Perkins Street. In accordance with the Special Review Procedure established for this project in the Secretary's Certificate on the Environmental Notification Form, the Charlesgate portion of the project will be allowed to proceed in advance of the completion of the project-wide environmental review, assuming the DEIR is deemed to be adequate.

Equal Opportunity / Affirmative Action Employer / Equal Housing Opportunity

The purpose of the overall Olmsted Parks improvements project is to ensure the continued restoration of the Emerald Necklace in its entirety. Over the years, extensive urbanization has adversely affected the watershed surrounding the park, and the Muddy River in particular. As a result, damaging flooding has worsened in adjacent areas because there is little natural storage left in the extensively-paved watershed and because erosion and sediment have clogged the waterway, constricting its flood-carrying capacity. The sediments at the bottom of the Muddy River are heavily contaminated, deteriorating the water quality of the river. The damming of the Charles River converted the Muddy River from a tidal estuary to a fresh water river, allowing non-native invasive species of flora, such as Phargmites reeds, knotweed, and buckthorn to flourish, pushing out native species, eliminating natural habitats, and greatly limiting the diversity of wildlife that can live within the park. Years of neglect have severely damaged the contours, plantings, roadways, and bridges that constitute Olmsted's distinctive aesthetic vision.

To solve these problems and preserve this historic landmark, the Phase I project proposes to accomplish five objectives:

- Provide flood control – reduce flooding in adjacent areas during major storms by reducing the flood elevation in the river.

- Improve water quality – reduce the level of contaminants in the river while increasing the dissolved oxygen.

- Enhance the aquatic and riparian habitat – improve the quality and diversity of the habitat in the river and along its banks.

- Restore the landscape and historic resources – implement elements of the Master Plan along the river corridor to restore the historic landscape and resources.

- Institute Best Management Practices (BMPs) in the Muddy River watershed – provide both source and treatment control BMPs to minimize re-sedimentation rates to reduce pollutant loading, and to contribute to the attainment of Class B water quality standards.

The proposed Phase I project has been divided into six geographic areas – the Charlesgate, the Back Bay Fens, the Riverway, Leverett Pond, Willow Pond, and Ward's Pond. The preferred plan for Phase I includes numerous actions that are judged by the project proponents to be technically suitable, environmentally sensitive, and cost-efficient and are designed to fulfill one or more of the above-identified objectives. These actions, which are applicable to one or more of the six geographical areas, include the following:

- Construct six staging areas for dredging equipment, dewatering equipment, and truck loading.

- Dredge and remove accumulated sediment and debris from the Muddy River and the three ponds.

- Remove the Phargmites and other non-native invasive plants to enhance the biological environment and preserve the historic shoreline.

- Replant vegetation throughout the park and re-vegetate staging areas and disturbed areas with plants selected from the Olmsted list to enhance habitat values.

- Daylight the culverts at the Fens Bridge and the former Sears parking lot to Olmsted-designed shoreline configuration to the extent possible.

- Construct new arched culverts under the Riverway and under Brookline Avenue.

- Create sedimentation basins at several locations by over-dredging, to provide additional flood storage.

- Rehabilitate or restore historic islands within the Muddy River.

- Create a vegetated swale near the Victory Gardens to reduce overland flow velocity and trap pollutants.

- Repair or replace worn pathways and denuded ground.

- Reconstruct curbs, gutters, and storm drain systems along roadways to minimize overflows into the parkland and prevent bank erosion.

- Install a particle separator at the end of the Emmanuel College drain and evaluate the effectiveness of additional particle separators at other drains based on a pilot study.

In addition, a number of basin-wide BMPs are recommended throughout the Emerald Necklace parkland watershed, including:

- Improve the effectiveness of catch basin cleaning and street sweeping programs by Boston, Brookline, and the MDC.

- Maintain restored banks, pathways, and upland to prevent erosion and address "desire lines".

- Enhance enforcement of "pooper scooper" regulations.

- Develop and implement a waterfowl control program.

- Develop a public education program addressing issues such as litter control, clean-up after pets, and limiting the use of pesticides and herbicides.

- Conduct a pilot program to determine the effectiveness of existing particle separators in the Muddy river watershed.

The proposed Phase I Muddy River improvement project will be carried out by the City of Boston Parks and Recreation Department (as the lead agency) and the Town of Brookline, with support from the Massachusetts Department of Environmental Management, the Boston Water and Sewer Commission, the Metropolitan District Commission, the U.S. Army Corps of Engineers, the Federal and Massachusetts Emergency Management agencies, and the Emerald Necklace Conservancy. Total project cost is estimated to be approximately $91,100,000, to be provided from a variety of Federal, State, and municipal funding.

The proposed Phase I project will initiate a long-awaited and sorely-needed restoration of the Muddy River and the Emerald Necklace parkland. It will provide badly-needed flood-control improvements which should significantly reduce the occurrence of damaging and costly flooding of residential, commercial, institutional, and public properties in the vicinity of the river during major storms. The dredging and removal of the contaminated sediments, stabilization of the banks, and implementation of BMPs will address the problems of water quality of the Muddy River, enabling the river to attain its Class B classification. The proposals to remove the monotype stands of Phargmites and other invasive vegetation that have encroached upon the parkland and their replacement with vegetation utilizing the Olmsted firm's planting lists not only will upgrade and improve the wildlife habitat but also will help to restore the intended aesthetic and landscape character of the various segments of the Emerald Necklace from the Back Bay Fens to Ward's Pond. Finally, implementation of the recommended BMPs will serve as an integral component to protect and maximize the public's investment in this valuable historic resource. The BRA fully supports this significant project.

Although implementation of the proposed Phase I improvements is expected to result in a number of environmental impacts, these impacts will be temporary, related to the rehabilitation construction itself, and will be mitigated to the greatest extent possible. The construction will result in the temporary disturbance of the Muddy River and the use of portions of the parklands, roadways, and pedestrian walkways for dredging and construction staging areas. The dredging of the contaminated sediments and the return to the river of water removed from the dredged sediment, and the mechanical removal of the invasive vegetation will increase turbidity and affect the Muddy River's water quality. Turbidity will be minimized by employing hydraulic dredging within the river (which also will greatly reduce upland disturbance) and by the use of silt curtains and the filtering of the return water to reduce suspended solid concentrations. The disturbed land areas will receive aeration and soil conditioning treatment following use and will be replanted.

Dredging also will result in the temporary loss of benthic species (worms, midges, and other invertebrates), but the present dominance of pollution-tolerant organisms are expected to be replaced by clean water benthic species. Some fish mortality also is anticipated, particularly of the less desirable bottom dwelling species which adversely affect the water quality. The removal of the contaminated sediment will enhance the aquatic habitat for open water species of pan fish and game fish and may increase anadromous fish migration opportunities. To minimize fish mortality, dredging should be suspending during the spawning season for the open water species. One rare fish species – the three-spine stickleback – has been found in Spring Pond and in a small pool in Willow Pond. To protect this species, no construction work is proposed in Spring Pond, and the stickleback in the Willow Pond pool will be relocated to Spring Pond and the sediment in the pool removed; the pool will then be reconstructed with clean fill and vegetated, allowing the stickleback to re-inhabit the pool over time.

The DEIR notes that in locations where the dredging will occur during the winter hibernation period, amphibians and reptiles will not be able to relocate and will be lost. In order to protect these species and to minimize the adversity of the dredging impact as much as possible, it is recommended that dredging be suspended in areas containing hibernation sites during this period to the fullest extent possible.

A waterfowl control program (as a BMP) is felt to be necessary for the control of ducks and geese, which are considered by the project proponents to be a particular nuisance because their continued presence has denuded the river banks and surrounding land and their feces impart large quantities of bacteria and nutrients into the river. Control strategies recommended include public education (signs) or local ordinances against feeding of the waterfowl, the planting of suitable plant species to form a barrier between the water and the land, and the implementation of reproductive controls. While we recognize that the ducks and geese may be a problem in some respects, they are nonetheless a valuable part of the natural environment of the parkland and river. Therefore, we would recommend that priority be given to the first two of the proposed strategies and that there be an annual review of their effectiveness (as part of the Annual Update Report to be submitted to MEPA under the Special Review Procedure) prior to any implementation of a reproductive control program. RR-1

The removal of the monotypic strands of Phargmites and other invasives, which are considered to be nuisance species, and replanting with a variety of indigenous wetland and upland vegetation will greatly enhance the biodiversity of the wetland and riparian habitat and will benefit the park's wildlife, as well as provide soil and sediment control. At the same time, however, it is recognized that the Phargmites reedbeds do provide an important habitat for several wildlife species. Reportedly, these reedbeds provide a suitable environment for some 3,000 or more robins, and possibly other birds, to roost overnight in the late autumn and winter months. With the removal of the Phargmites, this roosting habitat will be lost, adversely affecting several avian species. To mitigate this loss, the replacement plantings, while being in accord with the historic planting lists, also must ensure a suitable and appropriate RR-2

replacement habitat for the many avian species that frequent the Muddy River parklands, especially for overnight roosting.

During construction, truck traffic will be added to both the regional roads providing access to the project area and to local roadways abutting the Muddy River park system. The majority of this traffic will be attributed to the hauling of the dried dredged material from the staging areas and from the daylighting construction. Hydraulic dredging is expected to generate 20 truck trips per day (or about 4 trips per hour), with an additional 10 trips per day for contractors work trips/material delivery. Daylighting construction in the Back Bay Fens is projected to generate up to 80 truck trips and an additional 10 construction trips per day, for a total of 16-18 trips per hour with the dredging trips included. The major traffic impacts (degradation of level-of-service) are projected to occur at the Sears Rotary and at Brookline Avenue/Riverway, due to the closure of Netherlands Road. Potential lane designation changes and traffic signal timing/phasing changes are under consideration as mitigation of the impact at the latter intersection.

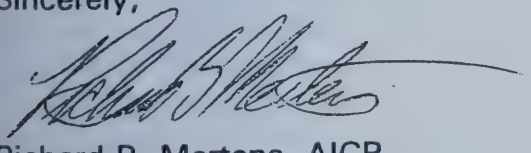
At the Sears Rotary area, lane closures will be required to accommodate culvert construction. Although at least one traffic lane would remain open to traffic at all times, since the area around the Sears Rotary currently experiences high traffic demands, especially during peak periods, as well as deficiencies in operations, any lane closures would significantly exacerbate the existing deficiencies and traffic congestion. With mitigation (signal timing and phasing adjustments) however, one-lane closures across the Riverway and the Fenway are not expected to degrade operations to unacceptable levels. Because of heavy traffic demands along Brookline Avenue, a daytime lane closure would severely impact traffic operations. Therefore, the lane closures would be scheduled only during the nighttime, when traffic generally is lower, and may be considered also for weekend daytime periods. Nonetheless, even during the nighttime and on weekends, lane closures will need to be curtailed, or possibly suspended, when a game is occurring at Fenway Park. Appropriate conditions will need to be included in applicable construction documents. In addition, a Construction Management Plan will need to be executed with the Boston Transportation Department (a requirement not noted in the DEIR).

Finally, we strongly believe that a coordinated maintenance/management program will be vital to preserve the significant resources and improvements that this project is providing for the restoration of the Emerald Necklace park and the Muddy River. As the Draft Maintenance Plan (Appendix J) notes, "(t)he Muddy River Parks of the Emerald Necklace presents a formidable management challenge." At the present time, the responsibility for the management and maintenance of these parks is divided among three jurisdictions – the City of Boston, the Town of Brookline, and the Metropolitan District Commission. In order to assure a consistent approach to the management and upkeep of this valuable parkland, a high level of cooperation among the responsible parties will be essential. A management structure capable of reaching a consensus on a standard of maintenance appropriate for this park system and able to implement a maintenance program with consistency needs to be established.

Adequate funding for park maintenance also will be essential. The above-noted Draft Management Plan estimated that at least twice the net productive hours currently available for park maintenance would be needed annually to maintain the Muddy River parkland at the recommended high level of maintenance standards. Such a higher level will be critically important to support and protect the over $91 million being invested in the Phase I improvements alone. For too long, the Emerald Necklace and Muddy River parks have suffered from the effects of a tight maintenance budget, loss of skilled staff, inadequate time available for maintenance work, and the natural deterioration of aging. The Draft Maintenance Plan included in the DEIR highlights a number of management and maintenance recommendations for improving maintenance and raising its standards. We believe that this draft plan offers several positive recommendations for the future maintenance of the Emerald Necklace parkland and the Muddy River, and therefore we would urge its adoption. At the same time, a quality program of Best Management Practices, as recommended in the DEIR, must be adopted and implemented by the responsible municipal and state agencies to ensure the effectiveness of the Phase I improvements and to reduce the need for future capital costs.

We trust that the above comments will be helpful as the proposed restoration of the Emerald Necklace parkland and especially the Muddy River is further developed and implemented, and we look forward to an expeditious start of this most important park improvement program.

Sincerely,



Richard B. Mertens, AICP
Environmental Review Officer

cc: Justine Liff, Commissioner
Boston Parks & Recreation Department

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Berklee
COLLEGE OF MUSIC

Office of the Vice President for Administration and Finance
Secretary/Treasurer

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APR 10 2002
EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS

April 8, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114

Dear Secretary Durand:

I am writing to you on behalf of the Berklee College of Music, a member of the Fenway Alliance, Inc. in wholehearted support of the Muddy River Restoration Project. Founded in 1977, The Fenway Alliance, is an 18-member consortium of arts, culture and academic organizations working collaboratively to enhance the cultural, physical, natural and economic environment of the Fenway/Back Bay area of Boston. Collectively, we represent a broad range of major cultural, academic, religious and cultural organizations in the Back Bay (Please see attachment for a list of our members.) The institutions that comprise The Fenway Alliance employ over 10,000 people and our academic members educate approximately 36,000 students per year. Annually, over two million tourists and visitors come to this area to enjoy its cultural offerings and natural beauty. *This past fiscal year Berklee enrolled over 3500 students and attracted over 100,000 patrons to concerts in our recital halls.*

Like other organizations in the Fenway Alliance represents , we support, educate, employ and entertain on a yearly basis, we have a very strong interest in seeing the long overdue Muddy River Restoration Project start as soon as possible. Many of our institutions have already experienced flooding problems that can reach a crisis point for our members in terms of the thousands of students they must protect as well as priceless works of Art.

The Draft Environmental Impact Report (DEIR) is a comprehensive, well-researched document that clearly demonstrates that this project will not only alleviate severe flooding, but is an environmentally sound course. It will increase wildlife habitats and restore the natural beauty and social and recreational use of the currently under-utilized Emerald Necklace Parklands. We, the 18 members of the Fenway Alliance, are very much invested in seeing this jewel of a park restored to its former grandeur.

To avoid a future flooding crisis in this area, it is critical that this project begin as soon as possible. Dredging of Charlesgate should be the first priority. The remainder of the project should be implemented as soon as funding is secured. The Fenway Alliance truly appreciates your interest in this project, and awaits your positive response.

Sincerely,

David R. Hornfischer

David R. Hornfischer
Vice President for Administration and Finance

1140 Boylston Street, Boston, Massachusetts 02215-3693, U.S.A. • (617) 747-2234 • Fax: (617) 247-0166
E-mail: dhornfischer@berklee.edu • Web site: www.berklee.edu

Members of The Fenway Alliance Inc.

- *Berklee College of Music*
- *Boston Symphony Orchestra*
- *Emmanuel College*
- *The First Church of Christ, Scientist*
- *Forsyth Institute*
- *Harvard University School of Public Health*
- *Huntington Theatre Company*
- *Isabella Stewart Gardner Museum*
- *Massachusetts College of Art*
- *The Mary Baker Eddy Library for the Betterment of Humanity*
- *Massachusetts College of Pharmacy and Health Sciences*
- *Museum of Fine Arts*
- *New England Conservatory of Music*
- *Northeastern University*
- *Simmons College*
- *Wheelock College*
- *Wentworth Institute of Technology*
- *YMCA of Greater Boston*

II
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107 Queensberry Street #2
Boston, MA 02215-4748

22 Bowker Street #2
Brookline, MA 02445-6955
(617) 734-2741

FRIENDS of the MUDDY RIVER
BROOKLINE-BOSTON

RECEIVED
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MEPA

November 2, 2001

Bob Durand, Secretary
Executive Office of Environmental Affairs
MEPA Office, EOEA 11865
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Mr. Secretary:

Earlier this year you distributed another edition of the Emerald Necklace Parks Master Plan, revised 2001. We, the Friends, had written in our comment on the Environmental Notification Form that the public was still waiting for the final edition which was supposed to incorporate the citizen revisions of the Brookline and Boston CAC organizations. We have now studied this new 2001 edition and compared it with previous editions and we are writing to object to the proposed new bicycle "path", or asphalt roadway for bicycles on the Boston (East) side of the Riverway. This new way or road for bicycles appeared in the first draft edition of the Master Plan (1987 or 1989). I was appointed by the Boston Park Commissioner to the Emerald Necklace Advisory Committee, the Boston CAC organization. I had discussed this and other issues in the draft plan with Boston Parks people in the context of those meetings. II-1

On behalf of our organization I objected to the proposal for new asphalt paving on the Boston side of the Riverway. In particular I pointed out that the Riverway is so narrow that it is possible to throw a ball from the Boston edge to the Brookline edge of the park. We suggested that with reference to the goal of dual circulation paths the two sides of the river should be considered inclusively, with the pedestrian path on the Boston side and the bicycle "path" or road on the Brookline side. Now bicyclists use the paved road which was created for police cars and they share it with pedestrians.

Prior to 1993 the Department proposed to redo the pedestrian path on the Boston side and we were present at a meeting at which the new bicycle road and the footpath were discussed. Present were Commissioner Justine Liff, Landscape Architect Fran Beatty, and Master Planner Marion Pressley.

At this meeting we argued that the Riverway is so narrow that it should be considered as a whole and the recommendation for separate biking and jogging paths should be interpreted as it is at present. Biking takes place on the Brookline side and pedestrians use the Boston side. Park land has been taken by the MDC to widen the Riverway road on two or three occasions. At the same time park land has been taken on the Brookline side to create a wide asphalt roadway for police cars. In 1993 the Boston Park authorities accepted our reasoning and the 1993 edition of the Master Plan provided for resurfacing the asphalt road on the Brookline side for bicyclists as well as pedestrians. We are attaching photocopies of the relevant sections of the Master Plans.

Now, the 2001 edition again calls for the building of an additional asphalt road for bicycles on the Boston side. Reference is again made to the original bridle path although much of this is gone. The present plan needs to be reevaluated We now have a great many bicyclists using the Brookline side of the Riverway. We have become convinced that the steady stream of bicyclists contributes to the security of pedestrians on the Brookline side. Bicyclists are planning to use the Carlton Street footbridge, once the Town restores it. At the same time the Boston side is used by a great variety of people, notably patients and personnel in the medical area.

I had discussed this issue with Laura Rome back in August. We had talked about the possibility of adding a codicil to the Master Plan if the Boston Parks people agree. Unfortunately I have been disabled during the intervening weeks and Laura has now left. We hope that you will look at the area. We would be happy to accompany you.

We have appended photocopies of the relevant portions of the three editions of the Master Plan which we have discussed—1989 (unpaged), 1993, and 2001.

Thank you for your attention to this matter.

Very truly yours,

Isabella M. Callanan, President
Friends of the Muddy River

3-Encl.:

1. 1989 edition (unpaged). Page opposite figure 124, top right column. Also Part Three, Master Plan Implementation, 7. Chapel Street Bridge, text includes the item "new bituminous concrete bike/jog path (6,000 SF)

2. 1993 edition, pp. 99-100
"The present paved pedestrian path on the Brookline side of the river will

become part of the newly established cycling and jogging path, which in the rest of the system will be following the route of the original and now obsolete bridle path. Some modification of the present path, such as changes in surface treatments and separation of ways, may be necessary to ensure that cycling and jogging traffic do not conflict with pedestrian use. The establishment of this continuous route throughout the Emerald Necklace park system fulfills a recommendation for a separate bicycle path made by Charles Eliot in 1896." Also

page 137. The Riverway Projects, Priorities, Scopes and Costs, Riverway South, East Side: "Proposed improvements include...6,000 SF new bituminous concrete cycling and jogging path."

3. 2001 edition, The Riverway Plan, page 145:
"Modify the present Boston pedestrian path to accommodate separate cycling/ jogging and pedestrian paths, to ensure the establishment the system-wide dual circulation system." Also on page 191, Longwood South-East Side: "Proposed improvements include...new asphalt-sealed crushed stone walks (15,000 SF)" and

Longwood North-West Side:
"Proposed improvements include...new asphalt-sealed crushed stone walks (6,600 SF)"

cc: Betsy Shure Gross
Commissioner Peter Webber, DEM
John Burckardt, Muddy River Project Manager
Peter Koff, Esq.

Appendix B

Appendix B
Regulatory and Agency Correspondence

Memorandum of Agreement	June 8, 1999	Funding and Administration
Memorandum of Understanding	November 4, 1999	Funding and Administration
Town of Brookline to MEPA	April 4, 2002	Funding Commitments
Draft Record of Decision	April 16, 2002	Phase I Waiver and DROD for Charlesgate Project
Proponents to MEPA	May 21, 2002	Information to Satisfy the 6 DROD Requirements
City of Boston to MEPA	June 25, 2002	Funding Commitments
Proponents to MEPA	July 1, 2002	Information to Satisfy the 6 DROD Requirements
Final Record of Decision	July 29, 2002	Phase I Waiver Request
Proponents to EOEA	November 27, 2002	Master Plan

MEMORANUM OF AGREEMENT
BETWEEN
CITY OF BOSTON AND TOWN OF BROOKLINE

AGREEMENT made this 8th day of June by and between the Town of Brookline, a municipal corporation located in Norfolk county, Massachusetts acting through its Department of Public Works (hereinafter, "Brookline") and the City of Boston, a municipal corporation located in Suffolk County, Massachusetts acting through its Parks and Recreation Department (hereafter, "Boston").

WHEREAS, the Muddy River in the Emerald Necklace is a joint responsibility of Boston and Brookline due to the municipal boundaries running through the center of the Muddy River, Leverett Pond, the Bubbling Brook, Willow Pond, and the stream from Wards Pond (See Exhibit "A"); and,

WHEREAS, Boston and Brookline seek to remedy the flooding, water quality, and habitat of the Muddy River system through the engineering and construction of restoration work; and,

WHEREAS, the Federal Emergency Management Agency (hereinafter, "FEMA"), the Federal Housing and Urban Development (hereinafter, "HUD") and the Massachusetts Emergency Management Agency (hereinafter, "MEMA") have granted funds for flood hazard mitigation of the Muddy River, and the Commonwealth of Massachusetts Department of Environmental Management (hereinafter "DEM"), the Boston Water and Sewer Commission (hereinafter, "BWSC") and the Brookline Public Works Department have allocated funds for the Muddy River; and,

WHEREAS, Boston and Brookline seek to investigate and secure additional monies for the Muddy River Restoration; and,

WHEREAS, it has been determined that a jointly undertaken design and contract process will inure to the mutual benefit of the citizens of Boston and Brookline; and,

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the sufficiency of which is hereby acknowledged, the parties hereto do mutually agree as follows:

ARTICLE I. PARTIES RESPONSIBILITIES

A. Boston shall:

1. in accordance with applicable provisions of Massachusetts General Laws, contract for design and construction services to accomplish the goals of the restoration of the Muddy River; and,
2. through contract services, provide all labor, equipment, materials, and other services necessary for the Phase I Muddy River work as described in "The Emerald Necklace Environmental Improvements Master Plan; Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement; Environmental Notification Form, January 1999;" and,
3. prior to publication or execution, provide Brookline with all documents related to the above described work; and,
4. notify Brookline in writing of any change in the Scope of Work as defined through the contract documents, including therein an explanation of the same so that any necessary amendment or revision to the contract agreement may be made to cover the work; and

5. furnish to Brookline a written report on the progress of the project as such reports are produced in accordance with the provisions of the contract documents.

Brookline shall:

1. upon request, be permitted to inspect and copy all records related to the work; and,
2. at all reasonable times, have access to the work site to inspect the work; and,
3. provide existing specifications or drawings for any projects or programs that impact the Muddy River and its watershed; and,
4. review all documents provided by Boston in timely manner;
5. provide a detailed maintenance plan to Boston, delineating the care and responsibilities for the upkeep of all improvements pursuant to the provisions of this agreement; and
6. Cooperate and assist Boston with scheduling and communicating to Brookline regulatory agencies and coordinating public meetings and hearings.

ARTICLE II. INCORPORATION

This Agreement is subject to the terms and conditions of the Massachusetts Standard Contract, and attachments appurtenant thereto, by and between the City of Boston and the Commonwealth of Massachusetts Department of Environmental Management relative to the Muddy River.

ARTICLE III. MUTUAL COOPERATION

Boston and Brookline shall designate representatives to meet regularly with the Citizens Advisory Committee, Massachusetts Environmental Protection Agency, and other agencies as necessary for the purposes of design review and project status reports.

ARTICLE IV. INDEMNIFICATION/LIABILITY

Any contractor working on the project shall indemnify Boston and Brookline, and their officers, agents, servants and employees against any and all claims, suits or liability of any nature whatsoever arising out of or resulting from the project in the amount of forty-five million dollars ($45,000,000).

ARTICLE V. TIME/METHOD OF PAYMENT

1. Boston shall act as the fiscal agent for Brookline. Boston shall finance the planning, design, engineering, permitting, and construction associated with the Muddy River restoration, and be reimbursed by FEMA, HUD, MEMA, DEM and other agencies for expenditures made pursuant to the terms of their respective agreements.

2. In the event of additional work, involving costs not provided for by any other grant program or existing appropriated municipal funds, Brookline shall consider, subject to appropriation and subject to prior approval by Brookline, paying Boston for all or a portion of the additional work upon its completion. Should Brookline not approve Funds for additional work, then Boston has no obligation to conduct additional work involving costs not otherwise provided for and has complete discretion as to what additional work, if any it will undertake.

3. Proposals from Boston for additional work, shall be approved in advance by Brookline except in the case of a condition which is an actual threat to the public safety in which case Boston shall endeavor to notify Brookline of the need for the work as soon as practicable.

ARTICLE VI. RECORD KEEPING AND REPORTS

Boston shall keep accurate and comprehensive records of the services performed, the costs incurred and the reimbursements and contributions received. Every six months and upon termination of this agreement, Boston shall make available all records for Brookline to prepare a financial statement detailing, among other things, the services performed, the costs, incurred and reimbursements and contributions received for the work in the previous six months.

ARTICLE VII. SEVERABILITY

If any provision of this Agreement is declared or found to be illegal, unenforceable, or void by a court of competent jurisdiction, then both parties shall be relieved of all obligations under that provision. The balance of the Agreement shall be enforced to the full extent permitted by Massachusetts law unless one or both parties would be materially prejudiced.

ARTICLE VIII. ARTICLE HEADINGS

The headings of the Articles set forth herein are for convenience or reference only and are not a part of this Agreement and shall be disregarded in construing or interpreting any of the provisions of this Agreement.

ARTICLE IX. GOVERNING LAW

This agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

ARTICLE X. TERM

This Agreement shall take effect as of the day and year first written above and shall terminate on June 30, 2005, or upon completion of the Muddy River restoration,

whichever is sooner; provided that, in the event that funding is not available, or for any reason whatsoever, cannot be made available for this project, this Agreement shall terminate.

In the event that Boston is notified by the FEMA, HUD, MEMA, DEM, or other funding agency that the project is terminated, Boston shall immediately notify Brookline in writing and, thereafter, neither Boston nor Brookline shall have any obligations under this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective duly authorized representative.

CITY OF BOSTON

By: The Parks and Recreation Department

Justine M. Liff, Commissioner

TOWN OF BROOKLINE

By: Board of Selectmen

Approved As to Form:

By: Mark Sweeney
Asst. Corporation Counsel

Approved As to Form:

By:
Town Counsel

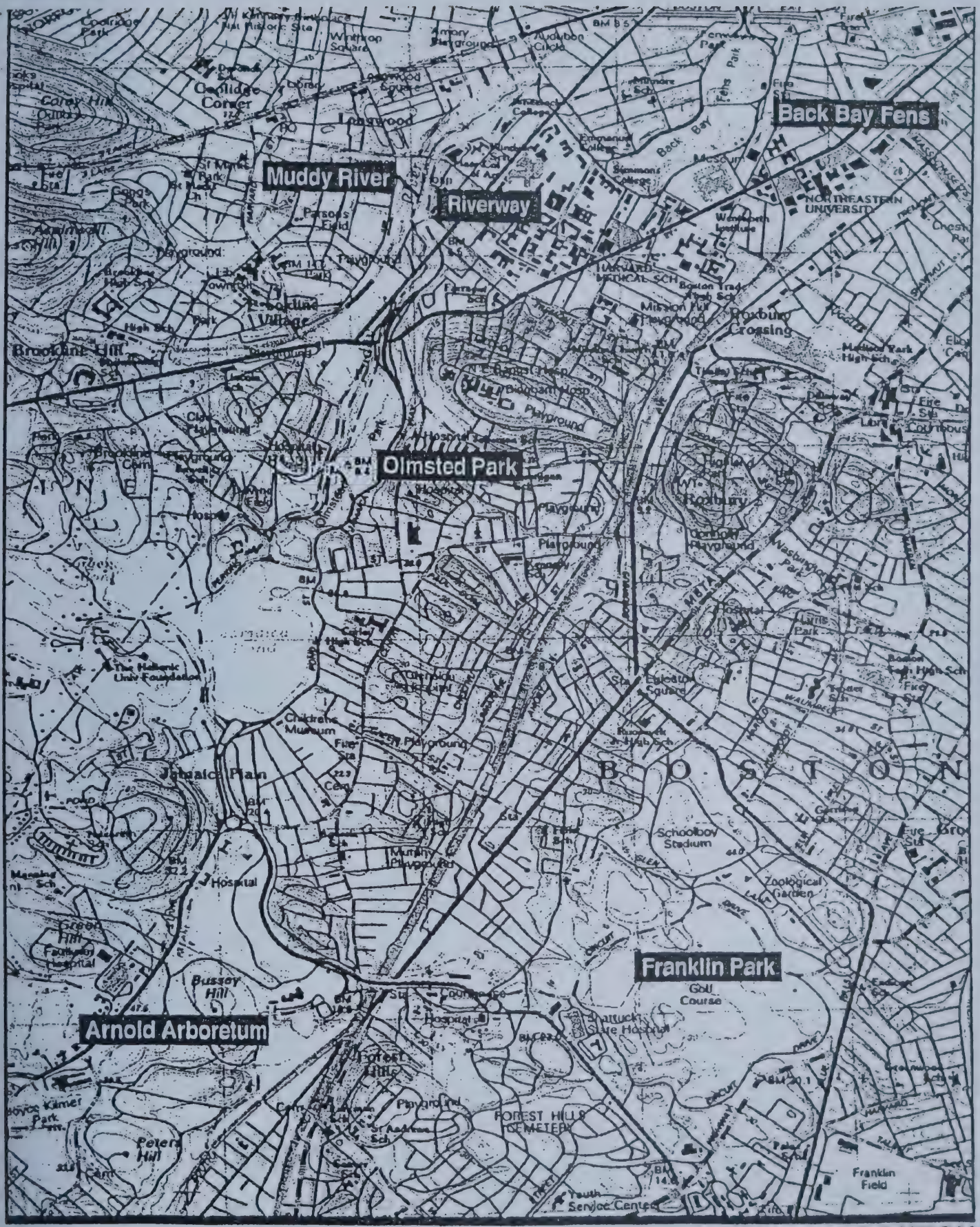


EXHIBIT "A"

PROJECT LOCATION

SOURCE: U.S.G.S. (1987)

Boston Parks and Recreation Department

Emerald Necklace Environmental Improvements Master Plan

Environmental Notification Form

Boston, Massachusetts

Figure 1

0' 2083'

CORTELL ASSOCIATES

MEMORANDUM OF UNDERSTANDING
BY AND AMONG
THE EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, THE MASSACHUSETTS EMERGENCY MANAGEMENT AGENCY, THE BOSTON WATER AND SEWER COMMISSION, THE TOWN OF BROOKLINE AND THE CITY OF BOSTON
CONCERNING RESPONSIBILITIES FOR FUNDING AND ADMINISTERING THE MUDDY RIVER RESTORATION PROJECT IN THE CITY OF BOSTON AND THE TOWN OF BROOKLINE

WHEREAS, Frederick Law Olmsted left the people of the nation and of the Commonwealth of Massachusetts a magnificent historic, cultural and environmental legacy of public parks and open spaces;

WHEREAS, in January of 1984 the Commonwealth of Massachusetts committed itself to reclaiming that legacy by creating the Olmsted Historic Landscape Preservation Program and the "Emerald Necklace Master Plan" of 1990; and, the Commonwealth's mission is to preserve significant historic landscapes and to encourage the public's appreciation, understanding, wise use and maintenance of this historic legacy;

WHEREAS, the health, safety and quality of life of the residents and communities of Boston and Brookline have been threatened by and subject to flooding, impaired water quality and degraded habitat related to the Muddy River in the Boston Park System known as the Emerald Necklace;

WHEREAS, in accordance with a Memorandum of Agreement ("MOA"), dated June 8, 1999, between the City of Boston and the Town of Brookline, the City of Boston has accepted responsibility for the implementation of the Emerald Necklace Environmental Improvements Master Plan and the Phase I Muddy River Flood Control, Water Quality, Landscape Restoration and Habitat Enhancement Project (EOEA# 11865) (the Plan and the projects contained therein and Phase I collectively referred to as the "Project", and the first portion of Phase I referred to as "Charlesgate");

WHEREAS, the Secretary of Environmental Affairs issued pursuant to the Massachusetts Environmental Policy Act, sections 61-62H of Chapter 30 of the General Laws and its associated regulations, a certificate, dated April 29, 1999, that establishes a special review procedure for the evaluation and review of the Project and a Citizen's Advisory Committee to enhance public participation in the entire Project, and a separate certificate concerning the scope of the required environmental impact report;

WHEREAS, the parties to this memorandum (hereinafter the "parties") believe it is appropriate to recognize and outline their respective roles relative to funding and administering the successful design, permitting and construction of Phase I (generally understood as estimated at approximately $43,200,000) of the Project;

NOW, THEREFORE, in order to provide the required funds and related administration for the planning, permitting, and design of Phase I of the Project and the construction and implementation of Charlesgate, the parties hereto agree as follows:

1. The parties intend that the funds outlined herein will be transferred to the City of Boston for the purposes of planning, permitting and the design of Phase I and implementing and completing Charlesgate in a timely manner, and the parties understand that the City of Boston Parks and Recreation Department shall be the project manager for the Project;

2. The City of Boston will receive and expend these funds solely for Phase I, including Charlesgate, purposes, as mutually agreed among the parties, and in accordance with applicable federal, state and local laws, regulations and associated policies, including but not limited to those concerning bidding and procurement of construction or other services required for the Project;

3. The parties agree to cooperate and work together to ensure that all requirements of the various programs from which funds will be provided, including those concerning non-federal matching funds, are fulfilled;

4. A total of approximately $7,100,000 is understood as the funding considered necessary for the total cost of the planning, designing, and permitting of Phase I and implementing, constructing and completing Charlesgate, and that these funds are anticipated from the following sources as further described:

   a. The Massachusetts Emergency Management Agency and the Department of Environmental Management ("MEMA/DEM") will continue to seek final approval from the Federal Emergency Management Agency ("FEMA") Hazard Mitigation Grant Program for approximately $2,300,000 in federal hazard mitigation funds, and should such approval be received, MEMA/DEM will enter into a contract with the City of Boston to provide these funds as described in the associated FEMA application. All parties agree to cooperate and continue to work together to secure these funds. Once a contract has been executed, the funds will be disbursed to the City of Boston on a reimbursable basis, pursuant to applicable regulations and the terms of the contract;

   b. The $790,242 in funds already provided by the United States Department of Housing and Urban Development ("HUD") through a federal fiscal year ("FFY") 1997 Community Development Block Grant ("CDBG") to MEMA (CDBG Disaster Recovery Initiative Grant Agreement #97-01 between MEMA and the City) will be disbursed to the City of Boston on a reimbursable basis, pursuant to applicable regulations and the terms of the grant agreement;

   c. The additional $1,500,000, that may be made available from HUD to MEMA through a grant under the FFY 1998 CDBG program, will be provided, if made available to the Commonwealth as anticipated, to the City of Boston through a grant contract to be negotiated between MEMA and the City of Boston. DEM and MEMA will complete and forward to HUD an action plan, as required by HUD, for the availability of these funds.

Upon approval of said action plan by HUD, the City of Boston will prepare and provide to MEMA a separate acceptable action plan and any other materials required for the expenditure of these grant funds. The funds will be disbursed to the City of Boston on a reimbursable basis, pursuant to applicable regulations, and expended in accordance with the terms of said contract;

d. DEM will enter into an agreement with the City of Boston to provide a maximum of $464,701, as appropriated by the Massachusetts Legislature in line item 2100-3012 of section 2 of Chapter 289 of the Acts of 1998, which shall be transferred to the City of Boston and expended in accordance with said agreement;

e. The Town of Brookline, through its Department of Public Works, agrees to transfer to the City of Boston, consistent with the above-referenced MOA, $500,000, which is the totality of the town's share of Phase I, to be made available as part of the town's fiscal year 2001 capital budget;

f. The City of Boston agrees to commit the approximately $45,700 in remaining funds originally provided by HUD to the city through the FFY 1997 CDBG Disaster Recovery Initiative program;

g. The Boston Water and Sewer Commission will transfer $1,500,000, which is the totality of the commission's share of Phase I, to the City of Boston to be expended on Phase I;

5. The City of Boston and the Town of Brookline, upon the appropriate completion of the design, permitting and implementation and construction of Phase I or as otherwise provided in the maintenance and management plan approved as described in this paragraph, accept responsibility, including any costs, for their respective shares of future maintenance and management activities (not including capital improvement projects), including the implementation of best management practices, identified in an appropriate maintenance and management plan, submitted jointly by the city and the town to the Secretary of Environmental Affairs, that will be reviewed as part of the review for adequacy of the environmental impact report pursuant to MEPA; provided however, should the approximately $7,100,000 identified in paragraph 4 not be provided, the city and the town may limit or, if necessary, cease their involvement with the Project.

6. The City of Boston agrees, in consultation with and subject to the approval of the parties, to establish and comply with reasonable and well-defined schedules for the design, permitting and construction of Phase I upon receipt of funding as outlined in this memorandum.

7. Nothing in this memorandum, except as expressly stated, shall be construed to diminish, enlarge or modify any right or liability of any of the parties, or create liability on the part of any public agency for the act or omission of another public agency or a private person. Nothing in this memorandum shall be construed to amend, repeal or otherwise alter the authority or jurisdiction of any public agency.

8. The parties acknowledge the importance of the tasks outlined in this memorandum and the monumental undertaking required for successful completion of Phase I as well as the entire Project. In recognition of this and of the significance of the Emerald Necklace to its constituents and that successful restoration cannot be achieved except through the collective cooperation of the parties, each party to this memorandum agrees to cooperate relative to the Project to ensure the preservation and protection of this unique Olmsted park system.

9. The effective date of this memorandum shall be the date of execution by the last of the parties to sign.

For the Executive Office of Environmental Affairs:

Secretary Robert Durand

Date: 11/4/99

For the Department of Environmental Management:

Commissioner Peter Webber

Date: 11/2/99

For the Massachusetts Emergency Management Agency:

Director Stephen J. McGrail

Date: 11-1-99

For the Boston Water and Sewer Commission:

Executive Director Vincent G. Mannering

Date: 10/29/99

For the City of Boston:

Mayor Thomas M. Menino

Date: 11/4/99

For the Town of Brookline:

Selectman Joseph Geller, Chairman

Date: 11.4.99

For the Boston Parks and Recreation Department:

Commissioner Justine Liff, as project manager

Date: 11/4/99

I, Argeo Paul Cellucci, Governor of the Commonwealth of Massachusetts, celebrate the significant progress of the parties to this memorandum in advancing the restoration objectives as outlined herein, commend the cooperative relationship that has developed among public and private groups in furtherance of these objectives, and recognize the need for continuing commitment by the parties to ensure the future health of the Muddy River, an integral component of the historic landscape legacy of Frederick Law Olmsted, Sr.

Argeo Paul Cellucci, Governor
Commonwealth of Massachusetts

Date: 11/4/99

Stan
Stan Ilpin
John Buchanan

TOWN of BROOKLINE
Massachusetts

OARD OF SELECTMEN
IA R. KALIKOW, Chairman
JOSEPH T. GELLER
GILBERT R. HOY, JR.
DEBORAH B. GOLDBERG
ROBERT L. ALLEN

RICHARD J. KELLIHER
Town Administrator

333 WASHINGTON STREET
BROOKLINE, MASSACHUSETTS 02445
TEL. (617) 730-2200
FAX: (617) 730-2054
www.townofbrooklinemass.com

April 4, 2002

Mr. Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

Based upon discussions with the Army Corps of Engineers and other recent developments since the filing of the EIR for the Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Restoration Project, we want to reaffirm our expectations concerning funding for this comprehensive initiative. Specifically, this letter is intended as an update of the Funding Strategy as presented in Section 10 of the EIR.

In November 1999 the Board of Selectmen executed a Memorandum of Understanding for this Project with the City of Boston and the Commonwealth of Massachusetts. The Town of Brookline has fulfilled its funding obligations for "the totality of the Town's share for Phase I". The Board of Selectmen unanimously recommended and Town Meeting overwhelmingly voted the appropriations stipulated in this agreement.

Given the expansion of Project scope and costs since the execution of the MOU more than two years ago, we recognize that additional Town capital funding will be required. Further, we understand the need to delineate a more specific approach to providing funding for Best Management Practices/Operations and Maintenance. Accordingly, we are prepared to take the following steps:

- Schedule an additional $1,625,000 in the Town's next five year Capital Improvement Program (deferring other scheduled projects, if necessary);

- Include the Town share of BMP/O&M costs in the next update of the Town's long-range Financial Forecast;

- Enter into a revised MOU reflecting the local funding commitments outlined above along with the funding commitments of the other parties to the agreement.

Capital Funding – Applying the allocation methodology specified in sub-section 10.14 of the EIR we anticipate an additional $1,625,000 in Brookline capital funding for the $91.1 million Project. This is in addition to the $500,000 already appropriated in accordance with the MOU. Our most recent information suggests that in addition to the $6.9 million already assembled the capital funding allocations will be:

Current Funding	$ 6,900,000
Army Corps	$46,514,000
State	$25,069,910
Boston	$10,969,090
Brookline	$ 1,625,000
Total	$91,078,000

Best Management Practices/Operations and Maintenance - Each year as condition precedent to the preparation of the Town's Annual Financial Plan, the Town Administration prepares a long-range Financial Forecast that attempts to account for all anticipated income and expenditures. Programs, projects, fixed costs, etc., that are not included in the Forecast usually are not reflected in the annual budget covered by the first year of the Forecast. To date, the Muddy River BMP/O&M have not been included in previous Financial Forecasts. The Town's share of BMP/O&M, as specified in the Army Corps Decision Statement will be included in the next long range Financial Forecast. The next Forecast will be issued in the Fall of this year and will frame Town operating budget requirements starting for FY04.

Memorandum Of Understanding – As the initial MOU was executed prior to Town Meeting's first appropriation for the Town's Phase I share, we are prepared to enter into a revised MOU as a basis for recommending additional Town Meeting appropriations to support agreed funding commitments for capital and BMP/O&M. Assuming federal funding commitments of at least $46 million from the Army Corps and other sources, then the State, Boston, and Brookline can affirm their updated mutual funding commitments as a basis for future Town Meeting action. If an updated MOU can be executed prior to the end of this calendar year, appropriations could be sought as early as FY04, if necessary.

This delineation of Town expectations is presented as re-affirmation of the Town's commitment to this Project, as originally expressed in the MOU. If there is a need for further explanation, please do not hesitate to contact this Board or DPW Commissioner DeMaio.

Thank You for your consideration.

Sincerely,

Board of Selectmen

Richard J. Kelliher
Town Administrator

Cc: Arthur Pugsley, MEPA Office
Congressman Barney Frank
Governor Jane Swift
Mayor Thomas Menino
Representative Frank Smizik
Representative Ruth Balser
Representative Paul Demakis
Representative David Donnelly
Representative Brian Golden
Senator Cynthia Creem
Nancy Daly, Brookline Advisory Committee
Betsy Shure Gross, Executive Office of Environmental Affairs
Justine Liff, Commissioner Boston Parks and Recreation
Margaret Dyson, Director of Historic Parks, Boston Parks & Recreation
Howard Liebowitz, Mayor's Office
Vincent Mannering, Boston Water and Sewer Commission
A. Thomas DeMaio, Commissioner of Public Works
Tom Brady, Conservation Administrator
David Turner, Town Counsel
Citizen Advisory Committee

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

Tel. (617) 626-1000
Fax (617) 626-1181
http://www.magnet.state.ma.us/envir

April 16, 2002

PHASE ONE WAIVER
DRAFT RECORD OF DECISION

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
PROJECT MUNICIPALITY	:Boston and Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Town of Brookline
DATE NOTICED IN MONITOR	:February 9, 2002

As Secretary of Environmental Affairs, I have reviewed this project pursuant to the Massachusetts Environmental Policy Act (M.G.L. c.30, ss. 61-62H) and Section 11.11 of the MEPA regulations (301 CMR 11.00), and hereby **propose to grant a Phase One Waiver** (as defined below), allowing the Charlesgate element of the project to proceed to the state permitting agencies pending completion of the Final Environmental Impact Report (FEIR) for the entire project. This proposed waiver is subject to the satisfaction of certain conditions, also contained in this Draft Record of Decision (DROD).

Project Description

This project involves a range of physical improvements and management practices that will produce flood control, water quality improvements, habitat enhancement, landscape restoration, pedestrian and automobile circulation improvements, and building and bridge restoration along the Muddy River. The project constitutes the first phase in the long-term restoration of the entire system of Emerald Necklace parks in Boston and Brookline. This MEPA review is proceeding under a Special Review Procedure (SRP), established in a certificate dated April 29, 1999. Pursuant to the SRP Certificate, a Citizens Advisory Committee

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(CAC), representing the full range of stakeholders, has been created. The CAC has met regularly over the past three years, and it has reviewed in detail drafts of the DEIR document. The project is also subject to a Memorandum of Understanding (MOU) executed in November 1999, by and between the Executive Office of Environmental Affairs, the Department of Environmental Management, the Massachusetts Emergency Management Agency, the Boston Water and Sewer Commission, the Town of Brookline and the City of Boston.

The project will require a variance under the Wetlands Protection Act, a 401 Water Quality Certification, a Chapter 91 License, and a Special Waste Determination from the Department of Environmental Protection (DEP), and a Section 404 permit under the Federal Clean Water Act from the U.S. Army Corps of Engineers. Because the Emerald Necklace parks are listed on the National and State Registers of Historic Places, the project is subject to review by the Massachusetts Historical Commission, the Boston Landmarks Commission, and the Brookline Preservation Commission. The project is receiving financial assistance from the Commonwealth; therefore, MEPA jurisdiction is broad in scope, extending to all aspects of the project with potential impacts on the environment.

As described in the DEIR, the project is comprised of six geographic elements: Charlesgate, the Back Bay Fens, the Riverway, and the three ponds within Olmsted Park (Leverett, Willow, and Wards Ponds). For each element, the DEIR analyzes alternative strategies (including a no-build alternative) and selects a Preferred Alternative.

Phase One Waiver Request

The SRP and ENF certificates allowed the proponent to request that the Charlesgate element of the project be allowed to proceed, provided that the environmental impacts and mitigation measures associated with the Charlesgate element were adequately described in the Draft EIR, and provided that the regulatory standards for a Phase One Waiver had been met. The waiver request was presented within the Draft EIR, and it was a subject of the comments received. As described in the Draft EIR, the Preferred Alternative for the Charlesgate element includes the removal of waterway obstructions under Ipswich Street; dredging 3,300 cubic yards (c.y.) of sediment and debris; and landscape rehabilitation.

Section 11.11 of the MEPA regulations provides that the Secretary may waive any provision or requirement of the Regulations not specifically required by MEPA, and may impose appropriate and relevant conditions or restrictions, provided that the Secretary finds that strict compliance with the provision or requirement would: (a) result in undue hardship for the proponent, unless based on delay in compliance by the proponent; and (b) not serve to avoid or minimize damage to the environment.

In the case of a partial waiver of a mandatory EIR review threshold that will allow the proponent to proceed with Phase One of the project prior to preparing an EIR, the Secretary, at a minimum, must base this finding on determinations that: (a) the potential impacts of Phase One, taken alone, are insignificant; (b) ample and unconstrained infrastructure facilities and services exist to support Phase One; (c) the project is severable, such that Phase One does not require the implementation of any other future phase of the project or restrict the means by which potential environmental impacts from any other phase of the project may be avoided, minimized or mitigated; and (d) the agency action on Phase One will contain terms such as a condition or restriction in a permit, contract or other relevant document approving or allowing the agency action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to commencement of any other phase of the project. In this context, I particularly note Section 11.01(2)(d) of the MEPA Regulations, which provides that a project shall not be phased or segmented to evade, defer, or curtail MEPA review.

Discussion

Comments received from CAC members and others have focused on two concerns associated with expediting the Charlesgate element in advance of the rest of the project. First, there is the concern that without an adequate commitment to BMPs and other maintenance measures, the investment in Phase One will be undermined by continued sedimentation, thus shortening the useful life of the improvements. Second, there is the concern over potential project segmentation. Although the Charlesgate element has clear value for flood control purposes, it will not in itself solve the significant flooding risks still faced by institutions and property owners upstream of the Fens. Thus, allowing Charlesgate to proceed without adequate commitments to the

implementation of basin-wide BMPs and maintenance, the timing of future phases, and the creation of an effective independent oversight entity, raises serious questions of efficiency and fairness. Accordingly, I have conditioned this DROD as set forth in Finding 5 below.

Findings

I have carefully reviewed the Draft EIR, supporting documentation, and written comments received (most of which support the early completion of the Charlesgate element), and I make the following findings:

1. Provided that the conditions set out below can be satisfied, delaying the implementation of the Charlesgate element would result in an undue hardship, causing the loss of federal funds for the work, and delaying the implementation of the partial flood control benefits associated with this element.

2. The potential environmental impacts of the Charlesgate element, taken alone, are insignificant. The Charlesgate work does not independently meet any MEPA filing thresholds. The impacts are primarily short-term in nature and associated with the construction staging. The Charlesgate element involves a minimal amount of dredging, the impacts of which have been described in the Draft EIR and for which adequate mitigation can be developed during permitting. DEP has commented that the Charlesgate element appears to qualify for limited project status under the Wetlands Protection Act.

3. Construction equipment and materials may be transported on existing roadways; downstream flood storage capacity within the Charles River Basin is adequate; and upstream flood capacity will be adequate **provided that basin-wide BMPs are implemented.** Based on and subject to the foregoing, I find that ample and unconstrained infrastructure facilities and services exist to support the Charlesgate element.

4. Because construction of the Charlesgate element will not restrict the means by which potential impacts of future phases can be avoided, I find, therefore, that the Charlesgate element is severable from the remainder of the project within the limited meaning of Section 11.11(4)(c) of the MEPA regulations. I note, however, that concerns remain over project segmentation that must be addressed in the conditions below.

5. All mitigation commitments associated with the Charlesgate element shall be incorporated into the agencies' Section 61 Findings and the associated Agency Actions (i.e., Permits or agreements concerning Financial Assistance). In addition, to ensure full compliance with MEPA, pursuant to Sections 11.01(2)(c) and 11.11(4)(d) of the MEPA Regulations, the following conditions must be satisfied before I may execute the Final Record of Decision. Each of these conditions shall also be incorporated into the agencies' Section 61 Findings and other agency actions:

a. Creation of a workplan and schedule for implementation and maintenance of basin-wide non-structural BMPs.
b. The Draft EIR does not include detailed discussion of maintenance issues for the Charlesgate element. The workplan needs to expand upon the Draft EIR treatment of maintenance for the Charlesgate element, and address any permitting requirements of the Metropolitan District Commission.
c. Commitment to completion of basin-wide evaluative studies for potential structural Best Management Practices (BMPs) during calendar year 2002, to ensure that the results of the studies will be fully reflected in the Final EIR.
d. To maintain the project schedule described in the Draft EIR and prevent undue segmentation, the Final EIR needs to be submitted to EOEA no later than January 31, 2003. I note that this filing condition should not be considered unreasonable or burdensome, as it is consistent with the proponents' anticipated filing timeframe as mentioned in the Draft EIR.
e. Creation of a dedicated funding source to support the levels of basin-wide BMP implementation and other maintenance measures required to prevent future degradation of the resource and the planned improvements. As suggested by the Town of Brookline, I suggest that the funding commitment be evidenced through amendment of the MOU.
f. Implementation of a management structure, through the creation of a permanent independent oversight body, representing the full range of stakeholders. This body should contain at a minimum the following members: Boston and Brookline parks agencies; Metropolitan District Commission; EOEA; DEM; Emerald

Necklace CAC representatives from both communities; Boston and Brookline Greenspace Alliances; Massachusetts Historical Commission; Boston Landmarks Commission; Brookline Preservation Commission; Emerald Necklace Conservancy; Charles River Watershed Association; and Boston Society of Landscape Architects. The oversight body shall have an independent staff, funded by the proponents.

Based on the above findings and subject to the above conditions, it is my judgment that the waiver request has merit, meets the tests established in 301 CMR 11.11, and will serve to advance the interests of the Massachusetts Environmental Policy Act. Therefore, I propose to grant the Phase One Waiver for the Charlesgate work subject to the aforementioned findings and conditions. This Draft Record of Decision (DROD) shall be published in the next issue of the *Environmental Monitor* for a fourteen-day public review and comment period. Following the close of that comment period and consideration of the comments received, if I have received satisfactory written confirmation that the conditions have been met, I will consider executing a Final Record of Decision (FROD). The issuance of a FROD would allow the Charlesgate element to proceed to final permitting and implementation prior to submission of the Final EIR.

April 16, 2002
Date

Bob Durand

Comments received on the Draft EIR (continues on next page):

03/01/02 Natural Heritage and Endangered Species Program
03/07/02 Edward Cutler
03/08/02 Division of Marine Fisheries
03/21/02 Lisa Tucker-Kellogg
04/05/02 Town of Brookline Department of Public Works
04/08/02 Northeastern University
04/08/02 Medical Academic and Scientific Community Organization
04/08/02 Friends of the Muddy River
04/08/02 Frances Shedd-Fisher
04/08/02 Arleyn Levee
04/08/02 Fenway Studios, Inc.
04/08/02 Boston Greenspace Alliance

04/08/02 Emerald Necklace Citizens Advisory Committee
04/08/02 Brookline Greenspace Alliance
04/08/02 City of Boston Environment Department
04/08/02 Jeffrey Ferris
04/08/02 Charles Beveridge
04/08/02 Metropolitan District Commission
04/08/02 Charles River Watershed Association
04/08/02 The Emerald Necklace Conservancy
04/08/02 Precinct One Town Meeting Members, Town of Brookline
04/08/02 Roger Frymire
04/08/02 Department of Environmental Protection NERO
04/08/02 Department of Environmental Management
04/08/02 Town of Brookline Selectmen
04/09/02 Massachusetts Emergency Management Agency
04/09/02 U.S. Department of the Interior, National Park Service
04/09/02 Massachusetts Historical Commission
04/09/02 Town of Brookline Conservation Commission
04/09/02 Friends of the Carlton Street Footbridge
04/09/02 Town of Brookline Preservation Commission
04/09/02 Brookline Village Action Groups
04/09/02 High Street Hill Association
04/10/02 Museum of Fine Arts Boston
04/10/02 The Fenway Alliance
04/11/02 Boston Water and Sewer Commission
04/12/02 YMCA of Greater Boston
04/12/02 Massachusetts Historical Commission

BAD/ASP/asp

BOSTON

Thomas M. Menino, Mayor

AP

MAY 21 2002
MEPA

May 21, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
Attention: MEPA Office
Arthur Pugsley, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02114

Subject: Phase One Waiver, Draft Record of Decision
Emerald Necklace Environmental Improvement Master Plan and Phase I
Muddy River Flood Control, Water Quality, Habitat Enhancement, and
Historic Preservation Project
EOEA Number: 11865

Dear Secretary Durand:

This letter is in response to the Phase One Waiver, Draft Record of Decision allowing the Charlesgate element of the Muddy River project to proceed to the state permitting agencies and sets out how the proponents will meet the conditions to be satisfied before you execute a Final Record of Decision. The Final Record of Decision will allow state agencies to issue permits for the Charlesgate element of the project that must begin by June in order to expend designated funds by the end of the calendar year. In the spirit of cooperation that has marked this project the City of Boston and Town of Brookline worked together with staff at the Executive Office to address each condition. We have described our commitments in meeting these conditions below and in supplemental information to follow this document.

Finding 5 Condition a

We have prepared a workplan and schedule for implementation and maintenance of the basin-wide non-structural BMPs. (Detail to follow.)

The workplan addresses the 9 basin-wide non-structural BMPs listed in Table 5-7 of the Draft Environmental Impact Report (DEIR). We will provide a description of the BMP, implementation methodology / funding, elements included in the scope of work and a schedule.

Boston Parks and Recreation Department • Justine M. Liff, Commissioner
1010 Massachusetts Ave., Boston, MA 02118 / Tel.: (617) 635-4505 / Fax: 635-3173

Document code

Finding 5 Condition b

The discussion of maintenance in the DEIR covered the entire project without a separate breakdown of the Charlesgate area. Most of the maintenance elements applied to Charlesgate as well as other portions of the project. In response to the DROD condition, we have provided several other pieces of information.

As part of our discussions with the MDC in preparing the Charlesgate plans and specifications we decided that the maintenance in Charlesgate needed to be taken over by the Contractor so there would be no confusion of responsibility during construction and in the guarantee period. As a result there is a 2 year maintenance agreement in the contract documents where the Contractor will provide all park maintenance in the Charlesgate project area for 2 years following the acceptance of the planted material. A copy of this specification section is included in supplemental detail to follow under separate cover.

Once the two year maintenance agreement is complete, the MDC will resume the Charlesgate maintenance. The MDC has indicated that they will use the specifications as the basis for their maintenance program. The MDC has been asked to provide a letter summarizing their position.

The MDC will be issuing permit conditions for the construction work in Charlesgate, however the final conditions are not expected to be available until the end of the permitting period since the MDC has asked that they be the last signatory on the permits. In response to the DROD condition, we have requested a letter from the MDC outlining the general conditions they anticipate imposing for the Charlesgate work. We will provide you with an updated set of conditions once the permitting is completed.

Documentation of the maintenance tasks for the project is summarized on Table 8-3 in the DEIR. Some of these tasks are applicable to Charlesgate and are included in the maintenance specification while others will be part of the larger maintenance commitment on the project. A summary of the maintenance, its reporting, and how it will be accomplished for Charlesgate follows:

- Update Maintenance Operations Plan – During the 2 year Contractor maintenance the specifications will govern the work and the project managers (BPRD) and on site inspectors will modify the direction to the Contractor as needed if maintenance is not meeting expectations.

- Maintenance Logs – The specifications require weekly submittals of maintenance logs documenting the maintenance performed.

- BMP Monitoring Logs – Implementation and monitoring of non-structural BMPs are covered under the workplan submitted for Condition a of the DROD. At this time there are no structural BMPs proposed for Charlesgate. Structural BMPs will be reexamined as part of the FEIR.

- Pest Control Program – This program is part of the waterfowl control program and covered as part of the non-structural BMP implementation.

- Water Quality Monitoring – This activity is included in the non-structural BMP workplan. A single monitoring location is included in the Charlesgate area.

- Report on Plantings – Section 1.02 I of the specifications for Contractor maintenance includes an annual report on the condition of the plantings. The MDC anticipates taking over this activity when the Contractor maintenance period ends.

- Report on Aquatic and Wildlife Distribution – This activity will be more important when the improvements are made on the remaining park areas with significantly more habitat area than Charlesgate. We anticipate implementing this activity once the remaining portion of the project is completed and probably using a single consultant to complete the task and sharing costs between park entities. The FEIR is also to further address the goals of this element of the project.

- Report on Historic / Character Defining Features – Similar to the Aquatic and Wildlife element this is more suitable for a single consultant to provide the report and the park entities share the cost. Once again, this element becomes more important when the remainder of the project is completed.

Finding 5 Condition c

We have developed a scope of work that details the study of structural BMPs on a basin-wide basis including a pilot study of the efficiency structural BMPs to meet expectations of sediment removal. The basin-wide evaluation of BMPs will be included in the FEIR and will be based on experience and published performance data on BMPs. The pilot work to evaluate field performance of some BMPs , if completed by the requested completion date of the FEIR, would not include two critical seasons – winter and spring. EOEA staff agreed that this data

was useful. We expect that once the pilot program is completed we will revisit the recommendations of the FEIR through a Notice of Project Change if necessary.

Finding 5 Condition d

We will be proceeding with the FEIR to be completed by January 31, 2003 barring any unforeseen complication to the work effort.

Finding 5 Condition e

As agreed in discussions with the EOEA staff, the City of Boston will provide a letter, similar in content and scope to the letter provided by the Brookline Board of Selectmen, reiterating the City's commitment to capital and maintenance expenditures. This action was deemed sufficient by EOEA staff at two meetings following the issuance of the DROD.

Finding 5 Condition f

The proponents agree to support a Muddy River Technical Advisory Committee that will facilitate communication between the property owners and managers in order to ensure that all four of the primary goals of the project are met. The structure of this committee will be a determining factor in the success of this committee in providing meaningful counsel for this project.

In accordance with recommendations made by Staff members from the Executive Office of Environmental Affairs, the proponents have evaluated Project Oversight Committees for the MMR and CA/T. Although these projects are distinct from the Muddy River Rehabilitation, there are elements from each that we determined would be useful components of the Technical Advisory Committee. The unique complexity of the project lies with the four goals of flood control, environmental protection, habitat enhancement and historic preservation.

In order to meet the condition of the Draft Record of Decision while not duplicating existing oversight bodies or regulatory processes and in order to ensure representation for all four project goals, the proponents shall establish Muddy River Technical Advisory Committee. Membership in the Technical Advisory committee will include the proponents, Metropolitan District Commission and eight members representing the four project goals (flood, water quality, habitat and preservation). Each goal has a public sector and a private sector representative.

MEMBERSHIP

The Commissioner or designee of: Boston Parks Department, Town of Brookline Department of Public Works, and Metropolitan District Commission

In addition to the standing members of the committee listed above, there will be two representatives, one public entity and one private entity for each project goal.

1. Flood Control	(Public) MEMA (Private) MASCO
2. Water Quality	(Public) DEP Waterways Division (Private) CRWA
3. Habitat	(Public) Division of Fisheries (Private) New England Aquarium
4. Preservation	(Public) Massachusetts Historical Commission (Private) Boston Society of Landscape Architects

The objective of the committee is to uphold the integration of the four project goals as set forth in the attachment *Muddy River Technical Advisory Committee.*

The proponents will each provide $5,000 to the ENC to convene and support the activities of the committee for the duration of construction and the warranty period for plant material installed as a component of this project.

Very truly yours,

Justine M. Liff
Commissioner
Boston Parks and Recreation Department

cc: Thomas M. Menino, Mayor, City of Boston
Deborah Goldberg, Chairman, Board of Selectmen, Town of Brookline

Document Code

Richard Kelliher, Town Administrator, Town of Brookline
A. Thomas DeMaio, Commissioner, Public Works Department
Antonia M. Pollak, Director, Environment Department, City of Boston
Stan Ivan, Chief Engineer, Boston Parks Department

Document Code

TOWN of BROOKLINE
Massachusetts

Department of Public Works

A. Thomas DeMaio
Commissioner

Muddy River Technical Advisory Committee

Committee Membership as Determined by Project Goals
There are four goals for this project. Two representatives, one public entity and one private entity are proposed for each goal.

1. Flood Control	(Public) MEMA (Private) MASCO
2. Water Quality	(Public) DEP Waterways Division (Private) CRWA
3. Habitat	(Public) Division of Fisheries (Private) New England Aquarium
4. Preservation	(Public) Massachusetts Historical Commission (Private) Boston Society of Landscape Architects

Standing Members:	Commissioners or designees of: Boston Parks Department, Town of Brookline Department of Public Works, and MDC
Chairman:	Chosen on a rotating basis (2 year term)
Term of Committee Members:	3 years (staggered terms). Committee members appointed by respective agencies.
Funding:	Proponents will provide funding for duration of project construction and plant warrenty period (approximately two years).
Timeline of Committee:	Period of construction plus maintenance funded by proponents. If member organizations see a need for continued existence beyond the construction and maintenance period outside funding will be required.
Meeting Schedule:	Two meetings per year, or as needed per the determination of the Chair

Technical Advisory Committee Duties

1. Advocate for sufficient budgets and other funding to support maintenance and repairs of the Emerald Necklace parks system.

2. Provide advice and technical expertise on historic preservation, scientific and technical issues related to the Phase I project and other phases of the Emerald Necklace Master Plan as they relate to: Flood Control, Water Quality, Habitat, and Preservation.

3. Promote close coordination of activities among Boston and Brookline agencies, Boston Water and Sewer Commission, Metropolitan District Commission, and the MBTA.

4. Review annual updates and provide feedback to the Boston Parks Department, Town of Brookline Department of Public Works, MDC and EOEA.

CITY OF BOSTON • MASSACHUSETTS

OFFICE OF THE MAYOR
THOMAS M. MENINO

June 25, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

The Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation project is a vital public improvement for the City of Boston. The project described in the Environmental Impact Report filed in January 2002 with MEPA is critical to protecting the river and the park as well as the adjacent neighborhoods and institutions. I would like to reiterate the City's commitment to completing the work described in the DEIR by providing management for the project, contributing to funding the capital improvements and providing high quality maintenance.

The Memorandum of Understanding executed in November 1999 outlined responsibilities of the City, Town of Brookline and Commonwealth of Massachusetts. Since that time the City has been the lead proponent on the project and has provided $1.5 million for the Muddy River Project through the Boston Parks and Recreation Department and the Boston Water and Sewer Commission. This fulfilled the obligations anticipated at the time of the MOU.

Since that time the cost and scope of the Project have expanded. It is clear that the Proponents, both the city and town, and the state will need to provide additional funds. After careful review and consultation with the Army Corps, EOEA staff, the Town of Brookline, a funding formula was reached that is outlined in the DEIR. Boston would

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provide 87% of the local proponents' share of the capital costs; Brookline would provide 13%. Using that formula and the most recent expectations of Corps participation, capital funding responsibilities would be as follows:

Current Funding	6,900,000
ACOE	46,514,000
State	25,069,910
Boston	10,969,090
Brookline	1,625,000
TOTAL	$91,078,000

Even in a time of serious fiscal constraints, the Muddy River project is a priority for the City and its Departments. Boston has already included $200,000 in the Parks and Recreation Departments Capital Budget for Fiscal Year 2003. This is in addition to the $1.5 million commitment in the MOU. We are prepared to include $10,969,090 for the Muddy River project in the City's Five Year Capital Plan.

The Best Management Practices (BMP's) and Operations and Maintenance obligations are necessary to preserve the public's investment over the long term. The City's responsibilities for BMPs and maintenance, as specified in the Army Corps Decision Statement, will be included in the City's long range financial planning. The Boston Parks and Recreation Department, Boston Water and Sewer Commission, and Public Works Department will all address maintenance responsibilities for the Muddy River Improvements in their long range planning for operations.

In addition to the public funding commitments outlined above, the City will continue to work in partnership with private organizations and individuals to enhance the parks of the Muddy River and the Emerald Necklace as a whole. Emmanuel College has already committed $150,000 for maintenance and other institutions are exploring similar contributions. The Parks and Recreation Department will take a leadership role in developing these partnerships with the Emerald Necklace Conservancy, a nonprofit dedicated to improving and protecting Olmsted's Park system.

Given the significant growth of The Muddy River project, it is appropriate to revisit the initial MOU with the Town of Brookline and Commonwealth of Massachusetts. We are prepared to enter into an MOU as a basis for recommending additional appropriations to support these funding commitments for capital, maintenance and BMPs. Contingent on federal funding of at least $46 million and $25 million from the Commonwealth of Massachusetts, the City of Boston and Town of Brookline will enter into a revised MOU which will serve as the basis for future appropriations. Development of the MOU should

begin as soon as the Army Corps issues its Decision Statement in order to determine funding needs for Fiscal Year 2004.

In summary the City of Boston is prepared to:

Include $10, 969,090 for the Muddy River in its Five Year Capital Improvement Program;

Include BMP and Operations/Maintenance costs in long-term budget development;

Enter into an MOU with the Town of Brookline and Commonwealth of Massachusetts addressing the funding commitments outlined in this letter.

These actions are intended to reaffirm Boston's ongoing commitment to the Muddy River project and its goals of flood control, water quality and habitat enhancement, and historic preservation. If there is a need for further information, please contact Commissioner Justine Liff. Thank you for your consideration of this matter.

Sincerely,

Thomas M. Menino
Mayor of Boston

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition F

BOSTON

Thomas M. Menino, Mayor

July 1, 2002

Mr. Robert Durand
Secretary of Environmental Affairs
Attention: MEPA Office
Jay Wickersham, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02114

Subject: Phase One Waiver, Draft Record of Decision
Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Dear Secretary Durand:

This letter contains supplemental information to our May 21 response to the Phase One Waiver, Draft Record of Decision. The Final Record of Decision will allow state agencies to issue permits for the Charlesgate element of the project that must begin as soon as possible in order to expend designated funds by the end of the calendar year. The City of Boston and Town of Brookline have worked with the staff at the Executive Office to address each condition.

Finding 5 Condition a

We have prepared a workplan and schedule for implementation and maintenance of the basin-wide non-structural BMPs. The workplan addresses the 9 basin-wide non-structural BMPs listed in Table 5-7 of the Draft Environmental Impact Report (DEIR). This program was developed with the assistance of Brookline Public Works and the Boston Water and Sewer Commission. Richard Thibedeau was also instrumental in guiding the development of these materials.

Finding 5 Condition b

We have attached the specifications for Charlesgate maintenance and the draft permit from the MDC. As noted in our initial response, the maintenance in Charlesgate will be taken over by the Contractor during construction and in the guarantee period. As a result, the Contractor will provide all park maintenance in the Charlesgate project area for 2 years following the acceptance of the planted material. This will include removal of trash from the water.

Boston Parks and Recreation Department • Justine M. Liff, Commissioner
1010 Massachusetts Ave., Boston, MA 02118 / Tel.: (617) 635-4505 / Fax: 635-3173

Finding 5 Condition c

We have attached a scope of work that details the study of structural BMPs on a basin-wide basis including a pilot study of the efficiency of structural BMPs to meet expectations of sediment removal.

Finding 5 Condition d

We will be proceeding with the FEIR to be completed by January 31, 2003 barring any unforeseen complication to the work effort. Work with the Citizen's Advisory Committee and Technical Advisory Committee is assumed in this commitment. Work with additional groups would necessarily add time to this schedule.

Finding 5 Condition e

As agreed in discussions with the EOEA staff, the City of Boston has provided a letter signed by the Mayor similar in content and scope to the letter provided by the Brookline Board of Selectmen. The letter reiterates the City's commitment to the Muddy River project. This action was deemed sufficient by EOEA staff at two meetings following the issuance of the DROD.

Finding 5 Condition f

The proponents agree to support a Muddy River Environmental Improvements Committee that will facilitate communication between the property owners and managers in order to ensure that all of the project goals are met. The revised proposal reflects discussions with Staff members from the Executive Office of Environmental Affairs and the Emerald Necklace Citizens Advisory Committee. The objective of the committee is to uphold the integration of the project goals as set forth in the attachment *Muddy River Environmental Improvements Committee.*

MEMBERSHIP

The Commissioner or designee of: Boston Parks Department, Town of Brookline Department of Public Works, and Metropolitan District Commission

1. Flood Control	(Public) MEMA (Private) Fenway Alliance (CAC member)
2. Water Quality	(Public) DEP Waterways Division (Private) CRWA (CAC member)
3. Habitat	(Public) Division of Fisheries (Private) New England Aquarium

(Private) Boston Society of Landscape Architects

5. Management & Maintenance (BMP's) — Boston Green Space Alliance (CAC member)
Brookline Green Space Alliance (CAC member)
EOEA/DEM

The proponents will each provide $20,000 annually from project funds to the Emerald Necklace Conservancy for use by the Committee to support its work. Funding will be provided for the duration of construction and the warranty period for plant material installed as a component of this project. The first monies will be transferred when the Project Cooperation Agreement with the Army Corps is signed. While housing the committee at the Emerald Necklace Conservancy was a topic of much conversation between the proponents and EOEA, we concluded that the ENC was the organization that most closely met the Secretary's requirements. Given the time constraints of meeting this unique requirement, using an existing organization was most efficient and the Conservancy is the only nonprofit organization dedicated exclusively to the protection and enhancement of the area.

Very truly yours,

Justine M. Liff
Commissioner
Boston Parks and Recreation Department

cc: Thomas M. Menino, Mayor, City of Boston
Deborah Goldberg, Chairman, Board of Selectmen, Town of Brookline
Richard Kelliher, Town Administrator, Town of Brookline
A. Thomas DeMaio, Commissioner, Public Works Department
Antonia M. Pollak, Director, Environment Department, City of Boston
Stan Ivan, Chief Engineer, Boston Parks Department
Emerald Necklace Citizens Advisory Committee
Simone Auster, Emerald Necklace Conservancy

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition A

Attachment A
Workplan for Implementation and Maintenance of Basin Wide Non-Structural Best Management Practices (BMPs)

This workplan describes the implementation and maintenance of Basin Wide Non-Structural Best Management Practices (BMPs) as a condition to signing of the Phase One Waiver Final Record of Decision for the Charlesgate work. Basin wide programs refer to the 5.6 square mile Muddy River watershed in Boston, Brookline and Newton. The workplan addresses the 9 basin wide non-structural BMPs included in the DEIR (Table 5-7).

A budget and funding for each BMP is included under its respective paragraph below. In succeeding years these budgets will be addressed in the annual budgeting process for each entity discussed below. During this first year the budgets are just being recognized and have not been identified as routine expenses under the respective agency budgets. Brookline has identified $500,000 in its fiscal 2003 budget for non specific stormwater improvements and intends to use this budget to fund the approximately $65,000 in new expenses identified below. BPRD has a budget of $200,000 for nonspecific Muddy River project elements and can use this amount to fund the estimated $26,000 for consultants and mapping. The balance of $17,000 will be covered by the Parkman Funds and operating budgets. The proponents are working with MEPA to assist the MDC in identifying sources of funds to implement their portion of the BMPs listed below.

1. Annual Water Quality Monitoring Program

Description of BMP

A water quality monitoring program is to be developed to measure the overall health of the water system. This program is anticipated to augment several existing sources of data to provide a complete picture of the water quality in the Muddy River. Data from this program will be used to measure progress in improvement of overall water quality as well as provide a basis for estimating the affects of the BMP program.

Implementation Methodology

The Boston Parks and Recreation Department will manage the water quality monitoring program with financial contributions for the program provided by the Town of Brookline and the MDC.

The initial preparation of the sampling and analysis program and the first several rounds of sampling will be conducted by a consultant hired by BPRD. Preparation of the sampling plan will include coordination with the Town of Brookline since they are instituting some sampling as part of their Stormwater Management Plan. The coordination is to assure that sampling is not duplicated in any areas.

Funding / Budget

Annual contributions of approximately $19,000 from Boston, and $50,000 from Brookline are anticipated to come from the annual capital budgets of each organization as identified above. The MDC has indicated that its contribution of $6,000 annually may get treated as a capital payment for several years contributed as a lump contribution from a capital budget item.

Some discussions have been held with local universities and watershed associations about assisting with the water quality monitoring program as part of their education program. We expect to explore these possibilities and may provide seed money for these programs to cover costs. The proponents plan to retain a consultant until such time as an arrangement can not be worked out with a non-profit agency and in either case will continue to manage the effort.

Elements Included in the Scope of Work

The initial scope of work to be covered in the Water Quality Monitoring Program would be as follows:

- Identify any other water quality information being gathered on a regular basis for Muddy River such as at the USGS gage and water quality monitoring in Stony Brook. Determine how existing data gathering can be used to supplement or provide data for this water quality monitoring program.

- Prepare a written sampling and analysis program for the water quality monitoring. The program is anticipated to include 8 locations in the Muddy River as outlined in the DEIR and an additional 7 drain locations. These locations may be modified based on coordination with other sampling programs. Finalize sampling parameters for program generally in line with the program in the DEIR. Up to 3 samples will be collected from each location on a quarterly basis. One sample will be collected in a dry period (no rain in the past 96 hours), one sample during a precipitation event and one sample in the day following a precipitation event.

- Submit the sampling and analysis program to agencies for review and comment prior to implementing sampling program.

- Retain a certified testing laboratory for conducting the water quality analysis.

- Collect the first baseline samples for the program and then implement a routine sampling program.

- Conduct routine sampling program contained in the sampling and analysis program as accepted by the agencies.

- Results of the sampling program are to be provided for inclusion in the Annual Update Report.

Schedule

Contracts for consulting services are to be negotiated and awarded in the second half of 2002 with the goal of getting the written program to the agencies and approved by the end of the year.

The baseline sampling program will be conducted in the last quarter of 2002 followed by quarterly sampling thereafter.

2. Improved Street Sweeping Program

As the Boston Water and Sewer Commission study of catchbasin cleaning proceeds it appears that the program will be relating the catch basin cleaning frequency to land use and slope of the catchment (contributing to the catch basin or group of catch basins) area. This has been found in other studies to be a leading indicator of cleaning frequency. Land use is loosely tied to street sweeping methodologies but not necessarily a direct relationship. As a first step to improving the street sweeping program the proponents plan to prepare a map depicting the frequency of sweeping for each street, as well as the entity responsible for street sweeping (BPWD, Brookline DPW, MDC, MHD, MTA or private entity) for the Muddy River watershed. This action would quickly show any major discrepancies in sweeping between areas and form the basis for discussing changes with the public works departments and other responsible entities. We already know for example that some areas of Boston do not receive regular frequent sweeping.

Description of BMP

As a first step in improving the street sweeping program the proponents will identify areas that are not getting minimal attention or are getting significantly less attention than similar areas in the watershed. Based on this information, the proponents will work with the agencies responsible for street sweeping to obtain a minimal level of service to all areas and increased service to areas that are apparently getting heavy sediment loads to the Muddy River.

Implementation Methodology

Preparation of the watershed map for street sweeping will be managed by BPRD and conducted by a consultant. The Boston Public Works Department, Brookline Department of Public Works and the MDC will provide street sweeping schedules to the consultant. Once the mapping is completed and recommended improvements identified by the consultant the proponents will work with the street sweeping agencies to implement changes. Use of the consultant has been assumed for the purpose of meeting the current schedule. The task could be accomplished using City or Town staff if it can be completed in the schedule noted below.

Funding / Budgeting

Funding for the mapping would be approximately $14,000 if completed by a consultant. This expense would be split from capital budgets of Boston and Brookline and would essentially be a one-time cost.

An allowance of $9,000 per year was identified in the DEIR as a cost to provide additional street sweeping for areas in the Muddy River watershed in Boston that are not currently receiving adequate service. Additional sweeping costs may be identified after the mapping is completed however both the Town of Brookline and the MDC have in place sweeping crews that could accomplish a minimal increase in service for the Muddy River watershed.

Elements Included in the Scope of Work

The scope of work for improving the street sweeping program would be as follows:

- Prepare a map of the watershed suitable for showing street sweeping frequency by area.
- Obtain street sweeping plans from the Boston Public Works Department, Brookline Department of Public Works and the MDC. Based on the street sweeping plans, prepare a summary map depicting the street sweeping frequency of all areas in the Muddy River watershed.
- Identify areas in the watershed that are receiving less street sweeping than the average and discuss increasing this frequency with the department providing street sweeping.
- Review the USGS study on street sweeping and sweeping efficiency in the Village Brook drainage area in developing suggested sweeping program recommendations. Preliminary indications are that frequency has more to do with effectiveness than equipment selection and obstructions in the sweeping program.
- Discuss with each entity responsible for street sweeping whether increased sweeping frequency would require additional equipment or staff. Additional funding needs would be recommended after this discussion.

Schedule

A consultant would prepare the mapping of existing street sweeping in the first quarter of 2003. The proponents would work with the entities responsible for street sweeping (Boston PWD, Brookline DPW, MDC, MHD and private sweepers) in the second quarter of 2003 with the expectation that changes in the sweeping programs would start to be implemented in the late second quarter of 2003.

3. Catch Basin Tracking and Cleaning Program

The goal of the catch basin tracking and cleaning program is to modify the cleaning frequency of catch basins based on actual field data to improve the collection of sediment in the storm water conveyance system. Each of the proponents (City of Boston and Town of Brookline) is at different stages of implementing a program to accomplish this goal. The following section will discuss implementing this BMP specifically as it applies to the participating entity.

Description of BMP

City of Boston – The Boston Water and Sewer Commission is implementing a catch basin tracking and cleaning program for Boston. They are part way through the program that is expected to be completed in August of 2003. Phase I to survey and inspect all BWSC catch basins has been completed. Phase II to clean all catch basins is scheduled to be completed by August 2003 and is proceeding on schedule. Phase III is to develop a preventative maintenance program based on the information gathered in the

first phases. Phase III will include gathering a years worth of data on sediment build up beginning in the next month and then preparing the maintenance program.

The City of Boston will resolve the issue of responsibility for catch basins and storm drains along the parkways with the MDC and EOEA. The MDC staff have expressed their opinion that the catch basin program is not within their jurisdiction and further, that such a program is a capital expenditure and not their responsibility. We have attached a copy of the vote transferring care, custody and control to the MDC that explicitly mentions drains and catch basins. The MDC has made capital investments in the parkways for almost a half-century, and, in any case, cleaning catch basins is an on-going maintenance effort, not a onetime capital expenditure. Once this issue of responsibility for parkway catch basins is resolved, the catch basin tracking and cleaning program will be implemented by the appropriate party.

Town of Brookline – Brookline's Water and Sewer Department is upgrading their database for their 2,400 catch basins and working to achieve 100 percent cleaning in all catch basins at least once per year. Currently the Town is cleaning 90 percent of their catch basins at least once per year and twice per year on main thoroughfares.

Implementation Methodology

City of Boston – Boston Water and Sewer Commission has funded the catch basin inspection and cleaning program and is managing the work being conducted by a consultant and contractor. Once the maintenance program is prepared they will evaluate the level of future funding of catch basin cleaning. Presently they commit funds on an annual basis to clean catch basins and it is premature to determine whether this will be sufficient.

Town of Brookline – The Town of Brookline is implementing an improved catch basin cleaning program using Water and Sewer Department staff. They are currently upgrading their catch basin database and collecting data based on cleaning routes. The town has targeted a goal of cleaning all (currently at 90%) catch basins once per year and twice per year on main thoroughfares. Town will implement a catch basin monitoring program, once the database is complete, to test catch basins in several areas for accumulation rates of sediment to be sure the cleaning frequency is adequate to prevent washout.

Funding / Budget

City of Boston – BWSC has funded the 3 phase catch basin program that includes preparing a database, cleaning all catch basins, and evaluating the future cleaning frequency. At the end of the third phase BWSC will determine what funding levels are necessary for future years and propose funding in the subsequent budget process. BWSC already maintains significant crews for catch basin cleaning and it will not be clear if these crews will be adequate at their current levels until the evaluation has been completed in 2003.

Town of Brookline – Funding for improvements to the Town's catch basin cleaning program are included in their current budget requests without anticipation of significant increases.

Elements Included in the Scope of Work

City of Boston – The scope of work for the BWSC is contained in the contracts with the consultant and contractor for this work.

Town of Brookline – The major elements of the scope of work for the Town of Brookline on the catch basin survey, inspection and cleaning program would be as follows:

- Convert the catch basin cleaning database from Paradox to an Access database.
- Conduct a monitoring program of selected catch basins over time to determine if the one per year frequency is sufficient to prevent washout from overfilled catch basins.
- Increase the number of catch basins cleaned each year until 100 percent cleanout is achieved.
- Evaluate the sediment volume data to determine whether there are trends by type of land use or winter sand application to be used in adjusting cleanout frequency.

Schedule

City of Boston – BWSC will complete the cleaning and evaluation of the catch basin tracking and cleaning program by August 2003. A maintenance plan for catch basin cleaning will be in place at the end of that period.

Town of Brookline –Brookline will be enhancing their existing database system for catch basin cleaning by converting to an Access database by the end of 2003. Results will be monitored in the next year of catch basin cleaning to determine if any changes to the existing cleaning program are required.

4. Trail / Desire Line Maintenance

Description of BMP

The objective of this BMP is to reduce the amounts of sediment runoff from park areas by maintaining trails and treating desire lines or denuded areas. On existing trails with loose surface treatments (such as stone dust) maintenance is to prevent washouts of stone dust or surface materials from reaching the river. On informal desire lines, the object will be to minimize runoff of sediments by either formalizing the pathway by applying a surface treatment (such as stone dust, mulch or pavement) or by revegetating the path with turf or appropriate planting to reduce erosion or prevent use of the informal path.

Annual maintenance needs will be assessed each spring and a list of prioritized trail and desire line maintenance will be created. The annual budget for maintenance of desire lines will be used to correct those of highest priority.

Implementation Methodology

This BMP will be implemented by the office and / or maintenance crews for the owner of each park section. Boston Parks and Recreation Department and Brookline Parks and Open Space Department are expected to assign about $5,000 per year to this program on an as needed basis. The MDC area is fairly small and maintenance can be included in routine activities.

In the spring of each year the a staff member from the planning staff and the maintenance supervisor for each entity will inventory the park areas and prioritize the corrective actions needed for trail and desire line maintenance. These corrective actions will be incorporated into the work schedules of the maintenance crews in each park area. If there is significant planting in any given year, the work may be contracted out as a separate landscape contract.

Funding / Budget

BPRD source of funding for the $5,000 annual allowance would initially be identified in the capital budget with later years targeting such sources as the Parkman Fund or a grant such as the Massachusetts Historic Landscape Preservation Grant Program. BPOS's annual $5,000 contribution would also be funded through the capital budget and then looking to similar grants being considered by the BPRD.

Elements Included in the Scope of Work

Elements for the work under the Trail / Desire Line Maintenance BMP would be conducted by each municipal and state maintenance entity and include:

- Assessment of trail / desire line maintenance needs each spring to be prioritized in a list for the park area.
- Assignment of a maintenance or corrective action for maintenance crew work order.
- Prepare landscaping contract if replanting recommendation justifies separate contract.
- Writing results of the maintenance or corrective action in maintenance log for inclusion in the Annual Update Report.

Schedule

The first assessment for trail / desire line maintenance will be made in the spring of 2003 by the maintenance supervisors for Boston and Brookline. The MDC would start their first assessment at the end of the maintenance contract for Charlesgate, estimated to be in 2005. Selected maintenance or

corrective actions will be assigned to maintenance crews for completion during the spring or summer of 2003 (2005 for the MDC). If significant work is contemplated in a given year this work may be assigned to a landscaper in a separate contract. Similar schedule of activities will take place each year.

5. Public Education Program

Description of BMP

The public education program is intended to initially address two major areas of concern where the public can improve water quality. The first area includes public activities such as litter disposal, disposal of pet feces and feeding the waterfowl. The second area of concern is the use of chemicals and pesticides in the garden areas beginning with the Victory Garden area.

Material will be developed for public dissemination on the issues of litter control, disposing of pet feces and feeding waterfowl. On the issue of chemicals and pesticide use on the garden areas a soil scientist will assist in developing some presentation material for garden club meetings that may ultimately result in written material for distribution.

Implementation Methodology

The Boston Parks and Recreation Department will manage the public education task with assistance from Town of Brookline staff and a consultant soil scientist. BPRD will also make use of state extension services where possible to augment material and resources for this work. The approximately $40,000 cost would be provided through in-kind services of BPRD and Brookline staff, printing or advertising costs split by BPRD and Brookline and approximately $5,000 in consulting fees split between BPRD and Brookline.

Funding / Budget

A majority of the Public Education Program would be conducted by in house staff of BPRD and BPOS. An equivalent of about $40,000 would be expended in this manner on the program. An additional $5,000 would be utilized for specialists and split between BPRD and BPOS. The $2,500 for each community would be included in capital budgets. An additional annual allowance of $5,000 ($2,500 for each community) would be expended in ongoing programs after design of the initial program. The annual budgets are anticipated to be included as in house staff services.

Elements Included in the Scope of Work

The initial scope of work to be covered in the Public Education Program would be as follows:

- Identify the types of communications suitable for reminding the public about the problems with litter control, pet feces disposal and feeding waterfowl. These may include flyers, signage, web announcements, or local cable and radio.

- Prioritize communications for first year based on budgets for distributing material.

- Develop communications material for initial distribution.
- Distribute or post initial communications material based on the selected media chosen for communications.
- Identify some education objectives for garden clubs to reduce runoff pollution in consultation with state extension service and soil scientist.
- Prepare material suitable for presenting at meetings with garden clubs with the purpose of improving runoff control from garden areas.
- Present at one meeting with Fenway Garden Club.

Schedule
Initiate development of the program in October 2002 (next fiscal year). Complete preparation of the first public information material for distribution by March 2003. Begin distribution of public information material in spring of 2003. Complete preparation of presentation material for garden club meeting in March of 2003. Make presentation at garden club meeting in spring of 2003.

6. Waterfowl Control Program

Description of BMP
In addition to the public education program aimed at discouraging the public from feeding waterfowl that encourages waterfowl to graze in the Muddy River park areas, a program of control strategies will also be developed and tested for effectiveness. This program will be developed in conjunction with the Division of Fisheries and Wildlife to determine the best control techniques available. The Division may also assist in testing the control strategies.

Implementation Methodology
The Boston Parks and Recreation Department will manage the waterfowl control task with assistance from Town of Brookline staff. BPRD will also make use of state agency services where possible to augment material and resources for this work.

Funding / Budget
The approximately $1,000 annual cost ($500 each community) would be provided for expenses in implementing test programs. In-kind services of BPRD and Brookline staff would be provided to supplement to direct costs of the program. All costs would be provided through annual operating budgets and in-kind services.

Elements Included in the Scope of Work
The initial scope of work to be covered in the Waterfowl Control Program would be as follows:

- Consult with Division of Fisheries and Wildlife concerning available methods for control of waterfowl. Select one or two methods for control to try in the Muddy River area.
- Conduct a site walk with Division of Fisheries and Wildlife and identify areas where problem is most concentrated. Select a control method suitable for specific problem areas in the Muddy River.
- Conduct public information meeting on the waterfowl control program.
- Implement a control method.
- Conduct a follow-up site walk with the Division of Fisheries and Wildlife to determine if the method of control was effective.
- Based on the first years results evaluate what method should be tried next or if the initial control method should be implemented on a wider scale. Prepare an evaluation of the waterfowl control program for the annual update.

Schedule

Begin work on the Waterfowl Control Program in the summer of 2002 by discussing the program and selecting a control methodology with Division of Fisheries and Wildlife. Determine the optimum implementation schedule for the method selected and develop plans to initiate the program according to that schedule by the fall of 2002. The implementation schedule will be dependent on the control methodology chosen and the best timing to use this methodology. The initial control program will be implemented in 2003 consistent with the recommended timing of the control methodology. Results will be evaluated over 6 to 12 months after the control has been implemented and the following years program developed. This will be an ongoing effort where methods will be tried and evaluated for effectiveness and possible implemented on a wider basis.

7. Catch Basin Labeling Program

Boston and Brookline currently have regulations requiring labeling of new catch basins in the watershed. Each catch basin is to be labeled with "Do Not Dump" or "Discharges to Charles River". The MDC does not have a similar regulation for catch basins in the Muddy River watershed.

Description of BMP

MDC is to adopt a regulation so that all new or repaired catch basins will have a label similar to "Do Not Dump" or "Discharges to the Charles River".

Implementation Methodology / Funding

This is an administrative activity to be undertaken by MDC staff. No additional funding is necessary to implement this BMP.

Elements Included in the Scope of Work
Anticipated activities to implement this BMP include:

- Prepare wording for a signage policy for new or repaired catch basins.
- Provide new draft policy to MDC Commission for acceptance.
- Amend permitting requirements for MDC to include use of signage when repairing or replacing catch basins.
- Amend MDC permit conditions to include signage on catch basins repaired or constructed.
- Wherever MDC catch basins are replaced or reconstructed as part of the Muddy River Restoration Project (as part of the construction of the new culvert under Riverway) a catch basin sign will be installed.

Schedule
Work on preparing this policy should begin in the fall of 2002 and be implemented by the end of 2003.

8. Improved Enforcement of Pooper Scooper Laws

Description of BMP
Boston and Brookline will be reviewing current bylaws and regulations concerning "pooper scooper" enforcement and review the available enforcement process. The objective of reviewing the regulations is to be sure that the communities can effectively control the pet feces problems. This effort will be coordinated with the public education program to remind the public of the "pooper scooper" regulations and the importance of compliance.

Implementation Methodology / Funding
BPRD and BPOS would each conduct the review of regulations and enforcement using in-house staff. It is anticipated that little additional funds will be necessary to accomplish this BMP.

Elements Included in the Scope of Work
The scope of work to be covered under this BMP include:

- Review current bylaws or regulations concerning "pooper scooper" requirements in Boston and Brookline.
- Identify the agency responsible for enforcement of "pooper scooper" regulations.
- Evaluate whether existing regulations and enforcement responsibility is suitable for improving the current situation on controlling disposal of pet feces in the park areas.

- Coordinate the public education program with work on the "pooper scooper" regulations to inform the public of current enforcement requirements and benefits to water quality.

- If the evaluation of existing regulations and enforcement suggests that there are insufficient controls in place to conduct a successful control program, submit a plan to modify city or town regulations to improve the control of pet feces.

Schedule

The schedule for initiating the improvement to the "pooper scooper" regulations will be coordinated with the public education program. The review of regulations and bylaws will begin in October, 2002 with the target of the spring of 2003 to have public education material ready. If bylaws or regulations need to be amended then that process will start in the spring of 2003.

9. Review of Storm Water Regulations

The City of Boston through the Boston Water and Sewer Commission are currently under a NPDES Stormwater Management Program regulating the conduct of storm water management including provisions of the Phase I Storm Water Regulations. Since the regulations are under the oversight of EPA and DEP, they are presumed to be adequate and any changes will be with the approval of the oversight agencies.

Brookline has prepared a Stormwater Management Plan outlining its proposed steps to meet the stormwater regulations and entered into a consent decree with EPA governing progress on these actions. One of the necessary actions that still need to be taken is to review the current stormwater regulations within the town to be sure they support the new stormwater management plan.

Description of BMP

Revise local stormwater regulations to be consistent with EPA Final Rule for Phase II Stormwater Regulations.

Implementation Methodology

Brookline has already formed a working committee including the Engineering Department, Water and Sewer, and the Conservation Commission to review the existing stormwater regulations. The committee is following the EPA Final Rule for Phase II Stormwater Regulations that outline a model ordinance.

Funding

There is no additional funding required to implement this BMP. The town committee is comprised of existing staff and the process will be completed internally.

Elements Included in the Scope of Work
The scope items to complete this BMP include:

- Prepare a draft stormwater ordinance
- Hold public outreach program to inform the public about the proposed ordinances.
- Enact the revised stormwater ordinances.

Schedule
The Brookline committee has set a target for preparing a draft set of ordinances by June 2002. During the summer of 2002 the Town will conduct a public outreach program on the ordinances with the expectation that the ordinances will be enacted in the Fall of 2002.

10/29/56

October 29, 1956.

A meeting of the Parks and Recreation Commission was held in this office, 33 Beacon Street, today at 3 o'clock p. m.

Present: Commissioner Kelley and Associate Commissioners Thomas J. Carty, O. Philip Snowden, and Harry J. Blake.

Voted, to accept the minutes of the previous meeting without reading.

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Transfer of Park Roadways

The first business of the meeting was a discussion of problems incident to the transfer of Boston park roadways to the Metropolitan District Commission.

Present during this part of the meeting, in addition to the four commissioners named above, were Public Works Commissioner George G. Hyland, Traffic Commissioner William Arthur Reilly; Joseph O'Connor and Joseph Galliotta, Chief Engineer and Assistant Chief Engineer, respectively, of the Traffic Commission; Chief Legal Assistant William H. Kerr of the Law Department, Benjamin Fink, Chief Engineer of the Metropolitan District Commission; and Harvey Weir, Attorney for the Metropolitan District Commission.

Mr. Kerr explained the provisions of Chapter 581 of the Acts of 1956, which pertain to the transfer to the Metropolitan District Commission of certain Boston parkways, streets and highways.

The Chairman laid before the Commission a letter proposed to be sent by the Parks and Recreation Commission to the Metropolitan District Commission, reading as follows:

"City of Boston--Parks and Recreation Department
33 Beacon Street, Boston 8, Mass.

"October 29, 1956

"Metropolitan District Commission
20 Somerset Street
Boston 8, Massachusetts

Attention: Commissioner Charles W. Greenough

Gentlemen:

This communication relates to the following public ways and parkways (or portions thereof) located in the City of Boston insofar as the same are under the care and control of the Parks and Recreation Department:-

(1) that portion of Gallivan Boulevard which lies between Morton Street and William T. Morrissey Boulevard,

(2) that portion of Morton Street which lies between Forest Hills Street and Gallivan Boulevard,

(3) the Arborway,

(4) the Jamaicaway,

(5) the Riverway,

(6) the Fenway,

(7) that portion of Park Drive which lies between Audubon Circle and Boylston Street,

(8) that portion of Boylston Street which lies between its junction with Ipswich Street near Park Drive and Hemenway Street,

(9) Charlesgate West,

(10) Charlesgate East,

(11) Agassiz Road,

(12) that portion of Centre Street which lies between Veterans of Foreign Wars Parkway and the Arborway

(13) that portion of Hyde Park Avenue which lies between Milton Street and Wolcott Square,

(14) that portion of Milton Street which lies between Hyde Park Avenue and the Neponset Valley Parkway,

(15) that portion of Perkins Street which lies between the Jamaicaway and Francis Parkman Drive,

(16) Francis Parkman Drive between Perkins Street and the Jamaicaway at Kelly Circle,

(17) Chestnut Street between Perkins Street and Riverdale Parkway Drive at the Brookline town line, and

(18) Willow Pond Road between the Jamaicaway at Bynner Street and Riverdale Parkway Drive in the town of Brookline.

"The transfer to your Commission under Chapter 581 of the Acts of 1956 of the care, control and maintenance of the public ways and parkways (or portions thereof) to which this communication relates is hereby approved as of 12:01 A.M. on Tuesday, October 30, 1956 and thereby made effective as of said hour and day pursuant to the provisions of said Chapter 581.

"For the purpose of providing continuous connection, such transfer is hereby declared to include so much of any public way or parkway intersecting the public ways and parkways (or portions thereof) to which this communication relates as lies within the sidelines thereof extended, including Commonwealth Avenue between Charlesgate East and Charlesgate West (exclusive of the bridge over the Muddy River), and including also the by-pass road between Park Drive and the Riverway.

"For the sake of definiteness, such transfer is hereby further declared to include -

(a) all roadways within the limits of the public ways and parkways (or portions thereof) to which this communication relates

(b) all walks and paths along, and approximately level with, every such roadway, if within twenty-five feet thereof, whether or not constructed as a sidewalk, and

(c) all lands lying between such roadways or between such walks or paths and such roadways, irrespective of the size, shape or purpose thereof, but excluding all monuments and other memorials subject to the supervision of the Art Commission of the City of Boston.

"Likewise for the sake of definiteness, such transfer is hereby also declared to include all signals and other devices (except parking meters) for the control of traffic on the public ways and parkways (or portions thereof) to which this communication relates, all traffic signs thereon (whether directional or regulatory), all trees and plantings on lands herein declared

10/29/56

to be included in such transfer, and all street lights as well as catch basins and drains servicing the public ways and parkways (or portions thereof) to which this communication relates.

"Very truly yours,

Frank R. Kelley (s)
Chairman
Harry J. Blake (s)
Thomas J. Carty (s)
Daniel J. Crowley (s)
O. Philip Snowden (s)

Parks and Recreation Commission of the City of Boston"

Upon motion of Commissioner Carty, seconded by Commissioner Snowden, it was unanimously voted to sign the above-quoted letter and forward it to the Metropolitan District Commission.

****

Deed - Joyce Kilmer Park

Commissioner Kelley laid before the other members of the Commission a for of deed conveying to the Hebrew Home for Aged the park property known as Joyce Kilmer Park, the Commission having voted to sell the land for the sum of $40,5 The deed reads as follows:

"Deed"

"In consideration of the sum of Forty Thousand Five Hundred Dollars ($40,500), the receipt whereof is hereby acknowledged, the CITY OF BOSTON, a municipal corporation duly organized and existing under the laws of the Commonwealth of Massachusetts, acting by its Parks and Recreation Commission (successor to the Board of Park Commissioners of said City) and with the approval of its Mayor, by every authority hereunto enabling and more especially by virtue of Chapter 36 of the Acts of 1955 (which was accepted by vote passed by the City Council of the City of Boston on April 11, 1955 and approved by its Mayor on April 12, 1955), does hereby grant to the Hebrew Home for Aged, a charitable corporation organized and existing under the laws of the Commonwealth of Massachusetts, the parcel of land in the West Roxbury section of said City commonly known as Joyce Kilmer Park and bounded by Centre Street, Walter Street and land now or formerly of The President and Fellows of Harvard College, being the parcel of land shown on plan entitled 'City of Boston -Centre St. - Walter St. - Joyce Kilmer Park (former) West Roxbury - October 29, 1956 - George G. Hyland, Commissioner of Public Works' to be recorded herewith.

"Reserving to the grantor, its successors and assigns, a right and easement to lay, maintain (by repair, by renewal or otherwise) and operate sewerage and drainage works (including open drains) in and through the following portions of the land hereby conveyed, to w

"(a) The portion which is bounded southerly by a line parallel with and ten feet southerly of the center line of the sewer pipe now crossing the land hereby conveyed in an east-west direction, westerly by Centre Street, northerly by a line parallel with and forty feet northerly of said center line of said sewer pipe, and easterly by Walter Street, and

"(b) The portion bounded northerly by the above-described portion of the land hereby conveyed, easterly by a line parallel with and five feet easterly of the center line of the sewer pipe connecting the aforesaid sewer pipe with the sewer pipe constructed under the easement described in the

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition B

SECTION 02950
LANDSCAPE MAINTENANCE

PART I - GENERAL

1.01 SCOPE OF WORK

A. The Limt of Work of the two-year Maintenance Period shall be the Limit of Work Line of the Contract as shown on the Contract Documents. These limits shall be staked by the Contractor for the Engineer's approval, especially near the Richardson Brisge and at Storrow Drive, to establish the official limit of maintenance under this Section of the Specificatins.

B. The two-year lawn maintenance shall include, but is not limited to the following: reseeding, mowing, watering, weeding, edging, fertilizing, rolling, aeration, disease and pest control, weed control, soil testing and leaf and litter pick-up. Areas of lawn that dieback during the two-year period shall be reseeded if originally seeded as directed by the Engineer.

C. The two-year plant maintenance shall consist of keeping the plants in a healthy growing condition and shall include watering, weeding, disease and pest control, pruning, cultivating, remulching and removal and replacement of dead material with equivalent plants. The work shall also include removal of litter and trash from planting beds.

D. The two-year maintenance shall include maintenance of pathways, sidewalks, and stonedust surfacing areas to keep them in good condition and shall include removing and legally disposing of debris, leaves, and litter, general maintenance of paving, replenishing and compacting stonedust, and replacing or repairing paving surfaces in kind as required. The work shall not include snow removal.

E. The two-year maintenance shall include maintenance of the waterway including removal of trash and debris from the Muddy River.

F. The two-year maintenance shall include maintaining and/or replacing erosion control at catch basins within the stonedust surfacing areas.

G. Plants that are dead or show obvious decline or loss of 5% of healthy growth during the either the first or second year of the two-year maintenance period, shall be removed and replaced with plants of equal size, unless designated otherwise in writing by the Owner. All replacements shall be plants of the same kind and size specified in the PLANT LIST and all costs shall be borne by the Contractor, except for possible replacements due to vandalism, theft or neglect on the part of others.

H. The following items of related work are specified and included in other Divisions and Sections of the Specifications:

1. Division I - General Requirements
2. Section 01025 - Measurement and Payment

3. Section 01046 - Control of Work
4. Section 01110 - Environmental Protection Procedures
5. Section 01300 - Submittals
6. Section 01562 - Dust Control
7. Section 02270 - Erosion and Sedimentation Control
8. Section 02901 - Miscellaneous Work and Cleanup
9. Section 02915 - Traffic Controls for Construction and Maintenance
10. Section 02930 - Lawns
11. Section 02940 - Planting

I. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this Section.

J. Examine Section 01046 CONTROL OF WORK, herein, for Limitation of Operations, which specifically limits work that impacts public street on specific dates and times.

K. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

L. Contractor shall comply with the "Order of Conditions Massachusetts Wetlands Protection Act, G. L. c. 131, S. 40, Requirements of Submittals and Signage".

M. Contractor shall comply with the requirements of Section 01015 PROJECT PERMITS, herein, for all permit requirements.

N. At the completion of the Two-year Maintenance Period the Contractor shall meet with the Metropolitan District Commission (MDC) maintenance staff to review the maintenance proceedures and to disciss specifics of plant maintenance.

1.02 SUBMITTALS

A. Samples: Prior to ordering the below listed materials, submit representative samples to Landscape Architect for selection and approval in accordance with requirements of GENERAL REQUIREMENTS as follows. Do not order materials until Landscape Architect's approval has been obtained. Delivered materials shall closely match the approved samples.

1. Screened Loam: The Contractor shall provide representative samples for testing and approval. Two test samples of ten (10) pounds each shall be taken and analyzed from each potential loam source. Contractor shall deliver samples to testing laboratory, have testing report sent directly to the Landscape Architect and pay all costs. Report shall be submitted at least one month before any loam is brought on to the site.

   a. Mechanical and chemical analysis shall be by a public extension service agency and/or a certified private testing laboratory in accordance with the current "Standards" of the Association of Official Agriculture Chemists.
   b. Soil test report shall include a mechanical sieve analysis with soil classification. Organic content shall be reported. Chemical analysis shall include pH (1:1 soil-water ratio), buffer pH, Soluble Salts (1:2 soil-water ratio), Nitrate Nitrogen,

Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Manganese, Ferric Iron and Sulfate.

c. Test report shall clearly recommend appropriate application of limestone, fertilizer, organic matter or other soil additives required.

2. Pine Bark Mulch: Submit one cubic yard sample.
3. Soil testing: Submit test results and product literature for the recommended treatment.
4. Fertilizer: Submit one (1) sample packet of fertilizer and a certificate showing composition and analysis for fertilizer.
5. Lime: Submit a certificate showing composition for lime.
6. Disease and pest controls: Submit test results and product literature for proposed use of chemical applications.
7. Weed controls: Submit test results and product literature for the proposed use of chemical applications.
8. Legal disposal or storage of materials: Provide notarized copies of agreements between the Contractor and owners of land used as disposal or storage areas.
9. Aeration methods: Submit proposed method (s).

Storage and Spill Prevention Plans: Contractor shall submit a Storage Plan and a Spill Prevention Plan for on site storage of materials and equipment. Refer to Contract Documents for approved locations for storage and for site access.

Certification: Submit Certification of license/certification for the Arborist.

Certification: Submit manufacturer's certified analysis for standard products. Submit certified analysis by a recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists for other materials.

Schedule for plant tagging: At least ten days prior to the expected replanting date, the Contractor shall request, in writing, that the Engineer/Landscape Arcitect provide a representative to select and tag stock to be replanted.

Schedule of Work: Prior to starting the work of maintenance the Contractor shall submit the following to the Engineer/Landscape Architect for Landscape Architect approval:

1. Schedule for Maintenance including yearly, weekly, and daily tasks;
2. Business (Maintenance) Plan for implementing maintenance;
3. Staffing and Equipment Plan including timed and untimed tasks, crew categories and staffing;
4. Equipment requirements; and
5. Dress code requirements for employees.

Weekly Maintenance Reports: Prior to starting the work of maintenance the Contractor shall submit the following to the Engineer/Landscape Architect for approval:

1. Form for Weekly Maintenance Log which shall cover all maintenance categories specified herein: and
2. Submission of Weekly Maintenance Logs detailing all work performed.

H. Reports: During the Two-Year Maintenance Period the Contractor shall submit the following reports to the Engineer/Landscape Architect for approval:

1. General Yearly Report on Plant Health: Submit annually by Ocoter 1st.
2. Reports of inspection by certified Arborists for pruning: Submit in the spring (by March 1st) and fall (by October1st) each year.
3. Reports of inspection for plant replacements and/or resetting of plant materials: Submit monthly reports by the 15th of each month May 15th through September 15th.
4. Reports of inspection of planting areas for weeds and invasives in general: Submit three times per year by the 15th of May, July, and September. Submittal shall identify weeds and appropriate treatment including any chemical applictions with timing and rates.
5. Reports of inspection of plants for disease and pests: Submit three times per year by the 15th of May, July, and September. Submittal shall identify disease and/or pests and appropriate treatment including any chemical applictions with timing and rates.
6. Report on pathway, sidewalk and stonedust surfacing areas: Submit a yearly report by September 1st.
7. Written requests for approval to aerate lawns: Submit yearly by April 15th.
8. Written requests for approval to roll lawns: Submit yearly by April 15th.
9. MEPA Annual Update Report: Submit to the Owner by October 1st a yearly compilation of all yearly reports required for MEPA compliance. Consult with Owner for report submittals requied for the MEPA submittal.

1.03 CERTIFICATE OF ACCEPTANCE AND GUARANTEE FOR REPLACEMENT PLANTS AFTER COMPLETION OF THE TWO-YEAR MAINTENANCE PERIOD

A. Following completion of both the first year of the two-year maintenance period, the Contractor shall request the Landscape Architect in writing for a formal inspection. If plant materials are in acceptable condition after the first year, written notice will be given by the Landscspe Architect to the Contractor stating that the maintenance period shall continue into the second year.

B. Following completion of the second year of the two-year maintenance period, the Contractor shall request the Landscape Architect in writing for a formal inspection. If plant materials are in acceptable condition after the second year, written notice will be given by the Landscape Architect to the Contractor stating that the maintenance period is complete.

C. When inspection is made by the Landscape Architect at the end of both the first year and the second year of the two-year maintenance period, any plant required under this contract that is dead or unsatisfactory shall be removed from the site and replaced. Each plant shall show at least ninety-five (95%) percent healthy growth and shall have the natural character of a plant of its species in accordance with the American Nurserymen's Association Standards. All replacements shall be plants of the same kind and size specified in the PLANT LIST and all costs shall be borne by the Contractor, except for possible replacements due to vandalism or neglect on the part of others.

Dead or unsatisfactory plants replaced after the second year of the two-year maintenance period is complete shall be replaced during the normal planting season, until the plants live through two years. Upon a written request by the Contractor the Landscape Architect shall make a final inspection for acceptance after the replacements have lived through two years.

EXAMINATION OF CONDITIONS AND DOCUMENTS

All areas to be maintained shall be inspected by the Contractor before starting maintenance work and any defects shall be reported to the Engineer prior to beginning this work. The commencement of the work of maintenance by the Contractor shall indicate his acceptance of the condition of the site and the areas to be maintained and that the Contractor has assumed full responsibility for the work of this Section.

The Contractor shall be solely responsible for judging the full extent of work requirements involved, including, but not limited to, the potential need for storing materials, maintaining replacement plants temporarily and/or rehandling replacement plants prior to final installation.

QUALITY ASSURANCE

Contractor must be knowledgeable of National Arborist Association standards and have at least five (5) years' experience involving this scale and type of work. The Contractor shall be an experienced and qualified landscaping contractor employing experienced workmen under the full-time supervision of a qualified foreman with a minimum of five years experience on projects similar in scale to this one. In addition the Contractor shall employ a licensed/certified Arborist in the Commonwealth of Massachusetts for this project. Submit license/certification for Arborist for approval by Engineer.

Subcontractor Qualifications: If landscaping work is assigned to a Subcontractor the Subcontractor shall be an experienced and qualified landscaping subcontractor employing experienced workmen under the full-time supervision of a qualified foreman with a minimum of five years experience on projects similar in scale to this one. In addition the Subcontractor shall employ, for this project, a licensed/certified Arborist in the Commonwealth of Massachusetts. Submit license/certification for Arborist for approval by Engineer.

Contractor shall establish an employee dress code with all employees outfitted with uniforms. Submit proposed dress code to the Engineer for approval.

MAINTENANCE OF EQUIPMENT AND ON SITE STORAGE OF MATERIALS

Equipment necessary for this contact shall be properly maintained and in good operating condition to the Engineer's satisfaction. The Contractor shall promptly remove and replace equipment, which the Engineer deems to be in unsatisfactory repair or condition or otherwise unsuitable.

B. Vehicles shall display prominently the Contractor's name, address, and telephone number on both doors. No personal vehicles shall be allowed on the project area. No equipment or vehicles shall be left overnight on the project area.

C. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from damage, injury and theft. No materials shall be left overnight on the project area.

D. Based on the Order of Conditions Massachusetts Wetlands Protection Act C.L.c. 131, 5.40 the Contractor shall submit a Storage Plan and Spill Prevention Plan for approval of the Engineer. No material shall be brought on to the site until approval of the Storage Plan and Spill Plan.

E. Storage shall be outside the one hundred (100') foot Water Resource Line and shall occur in areas designated on the Drawings or approved by the Engineer in the field.

F. No equipment or unconsolidated material shall be stored in the twenty-five (25') foot Riparian Zone or over the water. Any equipment used in the Wetland Resource Area or Riparian Zone that uses fuel, oil, and/or hydraulic fluid shall be inspected daily for leakage.

G. Any such equipment requiring repair shall be repaired outside of the Wetland Resource Area and the Riparian Zone. Any equipment that uses fuel, oil, and/or hydraulic fluid shall be manned at all times while operational within the Wetland Resource Area or Riparian Zone.

H. No materials shall be stored within the driplines of existing trees to remain or trees planted under this Contract.

1.07 PROTECTION OF EXISTING CONDITIONS AND MAINTENANCE OF PLANT PROTECTION FENCING

A. The Contractor shall see that throughout maintenance operations all necessary measures are employed by him to prevent any damage to the site during his maintenance operations. This shall include, but shall not be limited to the following: the water edges, river banks, existing trees, shrubs and ground cover, or existing paving, furnishings and utility systems on the site and outside of the limits of the site.

B. Fence for protection of planting areas installed under Section 02940 PLANTING, herein, shall be maintained in place during the two-year maintenance period. The protection fence shall be maintained in good condition and shall be repaired or replaced, if beyond repair, as required during the two-year maintenance period at no increased cost to the Owner.

C. Protection fence shall be removed in its entirety after the two year maintenance period is complete, but only after written approval to remove it has been issued by the Engineer/Landscape Architect. Contractor shall protect the plantings removal from any damage during the fence.

Should any damage occur to the above planting due to Contractor's lack of diligence in maintaining fence in good condition or during the removal of the fencing the Contractor shall bear the full cost of replacement of plant materials to the satisfaction of the Owner. All plant replacements shall be in accordance with the original contract installation. All restorations shall be in kind and shall be approved by the Engineer/Landscape Architect and the Owner.

FETY

All equipment to be used and all work to be performed must be in full compliance with all standards as promulgated by OSHA at the time of bidding, including, but not limited to those regulations concerning noise levels, protective devices and operator safety.

The Contractor shall be solely responsible for pedestrian and vehicular safety and control within the worksite and shall protect the public and its property from injury or damage that could be caused by the progress of the work. To this end the Contractor shall post work areas, provide police details and/or erect and maintain protective devices as necessary to the Engineer's satisfaction, including but not limited to, barricades, lights and warning signs.

Any practice employed by the Contractor,which is obviously hazardous as determined by the Engineer shall be immediately discontinued by the Contractor upon receipt of either written or oral notice from the Engineer to discontinue such practice.

NNER OF CONDUCTING THE WORK

The work shall be conducted with prime consideration given to the following:

1. Compliance with Americans with Disabilities Act requirements.
2. Compliance with governing laws and building codes.
3. Safety, protection, and convenience of the public and workmen.
4. Protection of the existing building structure, materials and finishes from damage.
5. Minimization of dirt and dust proliferation.
6. Avoidance of any damage to vegetation.
7. Maintenance of existing site drainage and drainage structures and protection of structures from siltation during construction.
8. Provide unobstructed legal exits and entrances at all times.

All work shall be done in accordance with the governing laws and building codes and the Contractor shall procure all necessary permits required for the work, other than those provided by the Owner. Refer to Section 01015, PROJECT PERMITS, herein.

The burning of trees, brush, stumps, etc., will not be permitted. The Contractor shall provide satisfactory off-site methods of disposal without additional compensation from the Owner.

Upon request the Engineer shall be provided with notarized copies of agreements between the Contractor and owners of land used as disposal areas. The Contractor shall

make arrangements and negotiations necessary for the satisfactory legal disposal of trees, shrubs, stumps, roots, dead-wood, boulders, debris, removals of any kind, and litter off site at no increased cost to the Owner.

1.10 REFERENCES AND STANDARDS

A. Where references are made in these Specifications to Standard Specifications, codes, etc., of the U.S. Government, State or local authorities, or professional and industrial societies and associations, the applicable portions thereof shall govern as fully as if they were recited at length herein, and shall include all revisions thereto issued as of the date of the Notice to Contractors pertaining hereto.

B. The following references are used herein and shall mean:

1. ASNS: "American Standard for Nursery Stock," ASNA 260.1, latest edition, published by the American Association of Nurserymen (AAN).
2. SPN: "Standardized Plant Names," latest edition, by the American Joint Committee on Horticultural Nomenclature.
3. AOAC: Association of Official Agricultural Chemists.
4. Pruning Standards: The "Standards for Pruning Shade Trees" of the National Arborist Association, 174 Route 101, Bedford, NH 03102.
5. ASTM: American Society for Testing and Materials, latest edition.
6. OSHA: Occupational Safety and Health Administration.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Contractor shall provide all required materials and equipment required to perform landscape maintenance as specified, herein.

B. All plant replacements made during both the first and second year of the two-year maintenance period shall be of the same species and size specified in the original project PLANT LIST. Refer to Section 02940 PLANTING, herein, for requirements for planting. All costs of replacements shall be borne by the Contractor, except for possible replacements due to vandalism, theft, or neglect on the part of others.

C. The Contractor shall be responsible for furnishing his own supply of water to the site at no extra cost to the Owner. Any work injured or damaged due to the lack of water, or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.

D. Fertilizer for Lawns and Plants:

1. **Lawns:** Standard application for lawn fertilizers, three times per year minimum, shall be:

Type of Fertilizer	Date of Application and Pounds Applied per 1,000 Square Feet for Lawns		
	April 1	May 1	Sept 1
20-10-5, 20-6-4 or similar analysis	5-7 lbs.	4-5 lbs.	4-5 lbs.
10-6-4, 10-5-5 or similar analysis	10-12 lbs.	10-12 lbs.	6-8 lbs.
8-6-4, 8-6-2	15-20 lbs.	10-15 lbs.	10-15 lbs.

Note: Only one of the above lawn fertilizing schedules shall be used during any one growing season.

2. **Trees and Shrubs:** High-nitrogen commercial dry fertilizers such as 10-8-6, 10-6-4, 8-6-4 and 8-6-2 shall be used for trees and shrubs. The important point is that the mix shall be a complete mix, which includes nitrogen, phosphorus and potassium.
3. Submit certification of fertilizer for Engineer's approval.

Liming:

1. Ground limestone shall be applied to bring lawn areas to desired 6.0-6.5 pH level. Rate of application shall be determined by soil test done on a yearly basis. Rate of application of ground limestone shall not exceed 70 pounds per 1,000 square feet at any one time, with at least 30 days between applications to bring the pH to the desired level.
2. Submit certification of lime for Engineer's approval.

Mulch:

1. Mulch shall be aged pine bark mulch aged a minimum of six months. The mulch shall be dark brown in color, free of chunks and pieces thicker than 1/4 inch. Mulch must be free of stringy material, and shall not contain, in the judgment of the Landscape Architect, an excess of fine particles.
2. Submit sample for Engineer's approval.

Weed Control for Lawns and Plants:

1. Any chemical applications recommended for control of weeds must conform to the Order of Conditions issued by the Department of Environmental Protection (DEP) and all Municipality, State, and Federal laws and regulations.
2. The proposed chemicals, the timing for control, and method application of chemicals shall be submitted to the Engineer in writing for approval. No material or method of application shall be employed on the site until the Owner has granted written approval.
3. Submit certification of proposed weed control and product literature for Engineer's approval.

Disease and Pest Control for Lawns and Plants:

1. Any chemical applications recommended for control of diseases and pests must conform to the Order of Conditions issued by the Department of Environmental Protection (DEP) and all Municipality, State, and Federal laws and regulations.

2. The proposed chemicals, the timing for control, and method application of chemicals shall be submitted to the Engineer in writing for approval. No material or method of application shall be employed on the site until the Engineer has granted written approval.
3. Submit certification of proposed weed control and product literature for Engineer's approval.

I. Screened Loam: Screened loam shall meet the requirements of screened loam as specified in Section 02930 LAWNS, herein. Submit test results for Owner's approval.

J. Planting Backfill: Backfill for planting beds taken from the planting hole and/or loam borrow and soil additives shall meet the requirements specified in Section 02940 PLANTING, herein. Submit test results for Owner's approval.

PART 3 - EXECUTION

3.01 LAWN MAINTENANCE

A. Watering:

1. The Contractor shall water as required all lawn areas to maintain adequate moisture in the upper six inches (6") of soil necessary for the promotion of deep root growth especially during the months of June, July and August and/or as required by weather conditions. Watering shall be done in a manner, which will provide uniform coverage, prevent erosion due to application of excessive quantities over a small area, and prevent damage to the finished surface.
2. Water sources for manual watering shall be a combination of yard hydrants (if available from BWSC) or watering trucks. The Contractor shall provide conventional hoses and sprinklers and/or watering trucks, at no increased cost to the Owner. Refer to Section 01046 CONTROL OF WORK, herein, for use of BWSC hydrants.
3. Materials and methods for manual watering shall be those, which encourage slow and deepwater penetration without compacting or otherwise disturbing the mulched beds or lawn surface.
4. The Contractor shall supply and maintain in good working order all hoses, sprinklers, watering trucks, safety barriers, warning signs, and other equipment and materials employed for manual watering.

B. Mowing:

1. During the spring and fall growing season when percipitation is normal grass shall be maintained at a maximum height of two inches (2") and a minimum of one and one-half inches (1-1/2"). Lawn clippings shall be removed.
2. During drought conditions or during July and August, if these months are dry, the grass shall be maintained at a maximum height of three inches (3") and a minimum of two and one-half inches (2-1/2"). Lawn clippings shall be removed.

3. Mowing and necessary trimming and edging shall be performed weekly, or when the grass is of sufficient length to produce one half-inch (1/2") of clippings.
4. Before the first mowing in the spring all debris, leaves, paper and trash that have accumulated over the winter should be picked up and removed from the property and the lawn areas shall be raked.
5. Collect litter prior to each grass cut. In areas of reduced grass cutting frequency collect the litter at least once a week between April and October inclusive

Soil Testing for Fertilizer and Lime Applications:

1. In the event that the lawn areas are not growing well, the Contractor shall perform soil tests in these areas to discover lime needs fertilizer requirements or potential polluting contaminants. Soil tests shall be taken in the early spring, early fall, or as required. The Contractor shall implement corrective and remedial measures as recommended by soil testing. Submit a copy of test results and recommended applications of materials to the Owner for approval prior to application.
2. Lawn fertilizer shall be applied three times per year minimum in April, May and September. Lime applications shall be either early spring or late fall, with early spring (April) being preferred.
   a. At least fifty (50%) percent of nitrogen should be in an organic form.
   b. Fertilizer shall be applied only when the grass is dry. After the application, the fertilizer shall be washed into the soil to prevent discoloration or burning of the grass.
   c. If water is not available, the turf shall be brushed lightly with the back of a rake.
3. In order to determine the yearly lime and fertilizer needs, soil samples shall be taken to a depth of 3-6 inches from varying parts of the lawn on a yearly basis. If the area to be tested is of considerable size, or if it varies in texture to any marked degree, several samples shall be obtained.
4. If there is a decided variance in the general character of the soil, the samples shall be kept separate. If the soil is uniform in character, the samples may be mixed together to form a composite sample. The sample(s) shall be protected from contamination while being spread out to dry on clean paper. After the soil is thoroughly dry, it should be sent to the testing agency.
5. The soils will be tested for the following:
   pH
   K. Nitrogen (total)
   Ammonium Nitrogen
   Phosphorus
   Potassium (Potash)
   Contaminants
6. Soil samples shall be sent for analysis to the State Agriculture Experiment Station in Waltham, MA or a similar testing agency approved by the Owner.

Weed Control:

1. When weeds start to invade, the Contractor should first identify the weed and then the appropriate treatment for its removal. The Contractor shall submit in writing the identification results and proposed treatment for removal to the Owner prior to starting any removal operations.

2. Hand removal is preferred, but if chemical removal with a selective herbicide is to be considered the best timing for control shall be established and the proposed time and method application of chemicals shall be submitted to the Owner in writing for approval. Do not proceed with removal until written approval has been given by the Owner.

E. Disease and Pest Control:

1. The Contractor shall submit diseased or distressed portions of the lawn to Middlesex County Agricultural agent in Concord, Massachusetts or the University of Massachusetts Cooperative Extension in Amherst, Massachusetts for recommended spray and application. The Contractor shall submit in writing the identification results and proposed treatment for control to the Owner prior to starting any treatment operations.
2. Any chemical applications recommended for control of diseases and pests must conform to the Order of Conditions issued by the Department of Environmental Protection (DEP) and all Municipality, State, and Federal laws and regulations. The best timing for control shall be established and the proposed time and method of application of chemicals shall be submitted to the Owner in writing for approval. Contractor shall submit in writing to the Owner the chemical (s) to be used and shall be given written approval by Owner prior to proceeding with application. Do not proceed with treatment until written approval has been given by the Owner.

F. Aeration:

1. In areas subject to overuse, aeration shall be performed yearly by the Contractor. Work shall be performed at the same time that fertilizer is applied in the spring.
2. Contractor shall submit proposed equipment to be used and the method and schedule of aeration to the Owner for approval. Do not proceed with the aeration until written approval has been given by the Owner.

G. Plant Litter, Leaf Pick-up and Trash and Debris:

1. Complete plant litter pick-up and leaf removal of all lawn areas shall be done weekly.
2. Complete trash and debris removal of all lawn areas shall be done weekly.

H. Grading and Reseeding or Resodding:

1. In the spring and in the fall any bare spots and any mounds or depressions in lawn areas, which inhibit proper drainage of the area shall be regraded and repaired.
2. These areas shall be smoothly blended into surrounding grades, scarified and reseeded in areas originally seeded or resodded in areas originally sodded, both with the original seed species.

I. Rolling:

1. Lawns shall be rolled in the early spring (but not sooner than April 1) to level grass uprooted by frost action. This shall be done only after all frost is out of the ground

and the soil has dried out enough so that it is not wet or soggy. Do not proceed with the aeration until written approval has been given by the Owner.
2. The roller shall weigh less than 100 pounds and shall not be used at any other time of the year.

LANT MAINTENANCE

Watering:

1. The Contractor shall be responsible for watering all plants including trees, shrub beds, ground cover, and perennials as required by weather conditions. At each watering the soil around each plant shall be thoroughly saturated.
2. Water sources for manual watering shall be a combination of yard hydrants (if available) or watering trucks. The Contractor shall provide conventional hoses and sprinklers and/or watering trucks, at no increased cost to the Owner.
3. Materials and methods for manual watering shall be those which encourage slow and deep water penetration without compacting or otherwise disturbing the mulched beds or lawn surface.
4. The Contractor shall supply and maintain in good working order all hoses, sprinklers, watering trucks, safety barriers, warning signs, and other equipment and materials employed for manual watering.

Fertilizing:

1. Once a year in the spring, all shrubs, groundcovers and perennials shall be fertilized. Individual specimen shrubs shall be fertilized at the rate of 1/2 to 1 pound per plant, depending on the size of the plant. Groups of shrubs shall be fertilized at the rate of 2 to 4 pounds per 100 square feet of soil surface area.
2. Where shrubs are planted in a cultivated border, fertilizer applications shall be evenly broadcast on the soil surface beneath the shrubs, then lightly worked into the soil.

Litter and Leaf Pick-up:

1. Complete litter and leaf pick-up including fall leaf removal of all plant areas shall be done weekly.

Weeding and Edging:

1. Thorough inspection of all plantings for required weed control shall be done three times per year. Submit a written summary of findings and proposed treatment for Owner's approval prior to proceeding with any removal.
2. The Contractor shall first identify the weed(s) and then the appropriate treatment for their removal. Hand removal is preferred.
3. Any chemical applications recommended for control of weeds must conform to the Order of Conditions issued by the Department of Environmental Protection (DEP) and all Municipality, State, and Federal laws and regulations. The best timing for control shall be established and the proposed time and method of application of chemicals shall be submitted to the Owner in writing for approval. Contractor shall

submit in writing to the Owner the chemical (s) to be used and shall be given written approval by Owner prior to proceeding with application. No material shall be used until the Owner has granted written approval.

4. Complete edging and weeding of all shrubs and all planting beds shall be done once a month or as necessary from mid-April through September. Beds shall be neat in appearance and maintained to the lines originally laid out.

E. Mulching:

1. All individual trees and shrub beds shall be mulched yearly in April. Mulch shall be a minimum of three inches in depth. Mulch shall be pine bark mulch. Submit sample to Owner for approval prior to spreading any mulch.

F. Disease and Pest Control:

1. Thorough inspection of all plantings for required disease and pest control shall be done three times per year. Diseased or distressed portions of plants shall be submitted to Middlesex County Agriculture Agent for the recommended treatment method and application. Submit a written summary of findings and proposed treatment for Owner's approval prior to proceeding with any removal.
2. Any chemical applications recommended for control of diseases and pests must conform to the Order of Conditions issued by the Department of Environmental Protection (DEP) and all Municipality, State, and Federal laws and regulations. The best timing for control shall be established and the proposed time and method of application of chemicals shall also be submitted to the Owner in writing for approval. Contractor shall submit in writing to the Owner the chemical (s) to be used and shall be given written approval by Owner prior to proceeding with application. No material shall be used until the Owner has granted written approval.

G. Pruning:

1. Plant material shall be pruned only as necessary during the two-year period. In order to determine "necessary pruning" the folloing proceedure shall be followed.
   a. All trees and shrubs to be pruned shall be inspected in the spring and fall by the Contractor's Arborist for any unusual safety or tree health concerns and a written report shall be submitted to the Owner which shall include proposed pruning.
   b. After the report is submitted, the Owner or his representative and the Contractor's Arborist shall perform a site inspection of all plant material in order to determine the extent of pruning to be performed.
   c. The Contractor's Arborist shall submit a report outlining all pruning to be performed as determined during the site visit.
   d. The Owner shall review and approve the proposed puning report and shall issue a work order to the Contractor's Arborist prior to the start of any work.
   e. Upon completion of pruning, the Owner or his representative and the Contractor's Arborist shall make a site inspection again. If the work has been satifactoriy completed as determined by the Owner's Representative the Contractor's Arborist shall submit a written report to the Owner detailing the work performed and the Owner shall issue written approval of the pruning.

2. The Contractor's Arborist shall be certified by the International Society of Arboriculture. All pruning must be done in compliance with American National Standards Institute Z133 and A300 standards.
3. All pruning cuts shall be made according to ANSI A300 Section 5.2.5. No stubs shall be left nor will flush cuts be made, the branch collar shall be left intact. Severed limbs shall be removed before the end of the workday. Wound dressing shall not be applied.
4. Tree branches shall be removed in a manner, which does not damage the tree, other plants or property. Where necessary to protect the public, ropes will be used to lower large branches. Not more than 1/4 of the leaf surface of a tree shall be removed.
5. Pruning of shrubs shall include removal of all dead or broken branches and branches, which interfere with the proper development of the shrub. Broken or badly bruised branches shall be removed with a clean cut. No shrubs shall be sheered or cut into shapes. The natural character of the shrub shall be maintained and shrubs shall be pruned and shaped to maintain their natural character.

Plant Inspection and Replacement and/or Resetting:

1. All trees and shrubs shall be inspected monthly during the growing season by the Contractor for any unusual safety or tree health concerns or for evidence of plants that need to be replaced or need to be reset to proper grades or upright position All dead, diseased, damaged plants, or plants that have safety issues shall be replaced as soon as planting conditions allow.. A written report shall be submitted to the Owner which shall include proposed plant replacements or resetting of material and a schedule for replacement and resetting.
2. After the report is submitted, the Owner or his representative and the Contractor shall perform a site inspection of the plant material in order to determine the extent of replacements and/or resetting required and to determine the schedule for replacement and resetting.
3. The Contractor shall submit a report outlining the schedule and providing a species list and size for all material to be replaced.. Size of all material shall conform to original PLANT LIST. Only top-quality plants shall be used.
4. The Owner shall review and approve the proposed plant replacement report and shall issue a work order to the Contractor prior to the start of any work
5. All plant replacements shall shall be selected by the Owner's Representative as follows:
   a. At least ten days prior to the expected replanting date, the Contractor shall request, in writing, that the Owner provide a representative to select and tag stock to be replanted.The Contractor shall arrange and pay for the transportation and overnight accommodations, if necessary, for the Owner's Representative during the period of time required to select and tag plant material.
   b. The Contractor shall be responsible to certify the availability of required plants in specified sizes from his sources of supply prior to requesting the Owner's Representative to make plant source inspections. In the event that plants at the inspection location are found to be unavailable or if insufficient size, the Contractor shall be liable to reimburse the Owner for all costs of the Owner's Representative's hourly services incurred during unproductive inspection trips as well as travel expenses and overnight accommodation.

c. The Contractor shall be responsible for timing the delivery of materials for replanting so as to minimize on-site storage time prior to installation. Plant quantities brought to the site shall be scheduled to be planted within the work day they arrive on the site. Other materials stored on the site shall be protected from weather, careless handling or vandalism, but shall be stored for a minimum time on site. The Contractor shall comply with the "Order of Conditions Massachusetts Wetlands Protection Act, G. L. c. 131, S. 40. Requirements of Submittals and Signage" as contained in the Contract Documents.

d. The Contractor shall schedule plant selection and digging operations so as to comply with nursery industry recognition of 'Spring Dig Only' or "Fall Hazard" plant materials. No substitutions of plant materials will be allowed for fall planting based on unavailability due to the 'Spring Dig Only' restrictions.

6. Upon completion of plant replacement and /or resetting of plant materials, the Owner or his representative and the Contractor shall make a site inspection again. If the work has been satifactoriy completed as determined by the Owner's Representative the Contractor shall submit a written report within two weeks of replanting or resetting to the Owner detailing the work performed and the Owner shall issue written approval of the plant replacement and/or resetting.

3.03 PATHWAYS, SIDEWALKS AND STONEDUST SURFACING AREAS

A. The area within the shadow of the elevated highway is stonedust surfacing. Pathways within the project area and City sidewalks are brick or concrete.

1. Collect litter weekly.
2. Soft surfacing materials i.e. stonedust shall have the material replenished and re-compacted yearly in the spring.
3. Inspect all paving surfaces within the Contract Limit Line yearly and repair or replace as required. All replacements shall be in-kind.

END OF SECTION

DRAFT

DRAFT

The Commonwealth of Massachusetts
Metropolitan District Commission
Engineering and Construction Division
20 Somerset Street – 6th Floor
Boston, MA 02108
Permit Section

Boston **Date:** **June 5, 2002** **Number:** **22286**

A Permit is hereby issued to:

Justine Liff
Boston Parks & Recreation
1010 Massachusetts Avenue
Boston, MA 02118

Jason M. Cortell and Associates, Inc.
244 Second Avenue
Waltham, MA 02451-1177
Attn: Jason M. Cortell
(781) 890-3737, ext. 111

The following purpose: To enter upon MDC property to perform work for the Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project EOEA# 11865 Task 1A at Charlesgate Park in Boston.

Subject to MDC Standard Construction Specifications and Traffic Regulations as applicable and the following special provisions:

[redacted]

This permit is issued and accepted upon the following terms and conditions:
The party accepting it shall conform to all provisions of law applicable to the exercise of the rights and the performance of work under the permit and to the rules and regulations of the Metropolitan District Commission; shall do the work subject to the approval of the **PERMIT SECTION** of the Commission as to the time, manner and location and all other conditions; that the permit may be revoked at any time by the said **PERMIT SECTION**; that the violation of any specification or requirement in this permit shall cause or constitute an immediate renovation thereof; shall protect and maintain all trees, drainage and other structures; shall restore the surface of the ground to a condition satisfactory to the **PERMIT SECTION** and maintain it in such condition against damage caused by the above mentioned work; and during the process of the work shall place and maintain proper barriers at all times, and from the beginning of twilight through the whole of every night sufficient lights to protect the public from injury or damage. If the work herein authorized is for a driveway entrance, this permit is granted and accepted on the condition that if the ownership of the land to which the entrance is appurtenant shall at any time become united with that of any adjoining lot fronting on the boulevard and also having an entrance on said boulevard, then the Metropolitan District Commission may revoke the right to maintain any or all of such entrances and grant a single entrance in place thereof. The entrance hereby granted shall be used only for the premises shown on the plan.

1. Advance notice of starting work shall be given to Lt. Joseph Hanley, State Police, Lower Basin Station, (617) 727-6781. The contractor is required to use as many police details as needed to ensure the safety of pedestrian and vehicular traffic at all times.

2. Disturbed MDC property shall be returned to original or better condition. See provision below for Charlesgate restoration.

3. **MDC Roadways shall not be occupied between the hours of 6:30 a.m. and 9:30 a.m. and the hours of 3:30 p.m. and 6:30 p.m. Monday through Friday without special permission from the Commission.**

4. Pedestrian and vehicular traffic flow and safety shall be maintained at all times. Detours shall conform to MUTCD Guidelines **(all as may be necessary)**.

5. Roadway excavations must be backfilled with **200 PSI controlled density fill** and shall then be allowed to cure over a 24 hour period by covering the excavations with steel plating. The installation for trench resurfacing shall be the minimum compacted depth of three (3) inches of binder course overlain by the minimum compacted depth of two (2) inches of bituminous concrete surface course, compacted depths shall be held in strict compliance or be equal to existing thickness when greater than the required minimum.

6. **Signage Program:** We approve the Project Sign package as presented in the April 16th transmittal by Jim Winkler at CDM. However, we request that an appropriate phone number be added to the project signs for community questions or concerns.

7. **Historic Signage**: MDC shall have the opportunity to review language and format of the proposed Emerald Necklace Historic Sign referenced on sheet L-11.

8. **Landscape Maintenance**: MDC landsoape staff shall accompany the contractor when they tag the plantings. In addition, MDC landscape staff shall accompany project proponents during the final walk-through acceptance of plant material both prior to the 2 year maintenance period and prior to the removal of the plant protection fencing. Removal of this plant protection fencing shall be timely.

   Contractor shall provide maintenance schedule and plan for the two year maintenance period to Brian Kerins, MDC Deputy Commissioner of Operations. In addition contractor shall provide on a seasonal basis the opportunity for MDC staff to observe maintenance operations and special requirements for the new plan material.

9. **Trash Removal:** Contractor shall be responsible for trash removal within the Project Area as delineated on the drawings submitted on March 2002 including removal of trash in the watercourse.

10. **Charlesgate Restoration:** The project proponents and its contractor may use the Charlesgate area as designated in the drawings dated March 2002 for staging for the Charlesgate project provided that Charlesgate is replanted and restored as indicated on sheets L-1 through L-11 at the end of stage one. This area may also be used for staging for the dredging of the Back Bay Fens, but will require a separate permit at that time. Stage Two of the restoration of Charlesgate, which the proponents will develop in conjunction with the MDC through a design process with community input is to be completed at either the end of the project's use of the Charlesgate area for staging of the Phase I Muddy River Flood Control, Water Quality and Habitat Enhancement and Historic Preservation Project or within 3 years of the completion of the Charlesgate portion of the Project.

11. **As-Built Drawings:** Project Proponents and its container shall provide the MDC both appropriate hard copy and electronic copies of the as-built drawings for the Project.

12. **Final Plans, Construction Changes and Traffic Management Plan:** The draft final plans submitted March 2002 meet our approval. Any changes to these plans need to be submitted with prior notice to the MDC.

It is the sole responsibility of the PERMITTEE to obtain ALL other permits required by law before commencing any work.

OSHA Standards for Safety shall be adhered to during the construction period.

It is the sole responsibility of the PERMITTEE to locate ALL utilities below ground and elsewhere by any means necessary; to ensure safe excavations and/or other related work.

For projects on any MDC property excluding parkways, advance notice of starting work shall be given to Captain Robert Cashman, MDC Park Rangers (617) 727-1188. The contractor is required to hire as many MDC Park Rangers as needed to ensure the safety of park users at all times.

Construction under this permit expires: **April 1, 2003**

This permit (or copy) should be on work site at all times

P (617) 727-2033
F (617) 727-6577

By_____
Donald Guidoboni, Permit Director
Metropolitan District Commission

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition C

PILOT PROGRAM AND WATERSHED EVALUATION FOR STRUCTURAL BMPs

SCOPE OF WORK

This is a scope of work for the BMP pilot program and watershed BMP evaluation study that will develop a specific Best Management Practices (BMPs) Plan for the Muddy River watershed (5.6 square miles in Boston, Brookline and Newton) that will be included in the Final Environmental Impact Report (FEIR).

The pilot program will monitor and evaluate the effectiveness of the currently operating treatment BMPs in the watershed. The pilot program will develop recommendations on siting and sizing of treatment BMPs. Comments received on the DEIR raised concerns that structural BMPs, such as particle separators, seldom function as intended in the typical guidance information. Operators of the BMPs in the Muddy River watershed also have raised this concern and the pilot program will develop general removal effectiveness for each BMP and either confirm the use of current guidance values or modify guidance information concerning design parameters of these facilities. The schedule for the pilot program is expected to extend beyond the submittal date of the FEIR, running for approximately one year beginning in the fall of 2002. The program will include data from all seasons to measure variations in seasonal runoff and rainfall events.

The watershed evaluation task will re-examine the BMP Plan recommended in the DEIR and develop a final BMP plan for the FEIR. This work will include an update of the effectiveness and implementation of source control BMPs (such as public education, street sweeping and catch basin cleaning), structural BMPs (particle separators, ponds, infiltration devices, or filtration devices), and alternative instream controls (sedimentation bays).

If the specific structural BMPs as suggested in the FEIR need to be modified by the results of the pilot program this would be accomplished through a Notice of Project Change (NPC) to the FEIR.

BMP Pilot Program

Task 1 – Monitor Existing Particle Separators: Develop a monitoring plan for the four (4) existing particle separators in the watershed. The monitoring plan will include monitoring the particle separators for removal effectiveness for up to 12 storm events (where estimated rainfall is predicted to between 0.25 and 1.5 inches in 24 hours and a sustained event for 2 to 3 hours), 3 during each season for a one-year period. Collected data will include the following:

- Flow measurements
- Collect discrete grab samples of inflow and outflow and analyze for TSS and Oil and Grease

The sediment levels in each separator will be monitored biweekly to track the buildup of particles and if the sediments are resuspended and 'washed-out' during larger storm events. The particle size distribution of the sediments also will be measured once a season (nominally in January, April, July and October). Rainfall in the area, conditions of the subdrainage basin (such as most recent street sweeping, catch basin cleaning conditions, season), and conditions of the separator immediately before and after the storm event will also be monitored and collected once a season or after each measured storm event.

Provide storm water sampling and level measuring equipment for installation at the selected separators. Monitor weather to assist in planning sampling events to meet storm sampling parameters. Submit water quality samples of storm water to an analytical laboratory for testing. Proponents will provide assistance at pilot test locations for equipment installation such as traffic management, coordination with operations, providing access to structure and clean out structures prior to study.

Task 2 – Develop Design Criteria: This task will develop design criteria (sizing, layout and solids removal efficiency and distribution of solids removal) for structural BMPs based on the monitoring performed in Task 1 and from other BMP monitoring efforts in New England. Review design criteria for particle separators selected for testing and review current literature for recommended guidance on design of particle separators. Compare actual test data on operation of the separators with recommended design criteria and determine whether the current separators are designed as recommended for the installation, are operating as designed in the current installation and whether the design criteria should be modified to result in better operation of the separators. Obtain and review similar studies on particle separators from other agencies (such as Massachusetts Highway Department,Boston Water and Sewer Commission, National BMP Data Base, Center for Watershed Protection, and the USEPA) to assist in designing the selected pilot program and contact MADEP for any similar information. Develop design criteria for the particle separators and other BMPs.

Task 3 – Assess Appropriateness of Particle Separators: Using the results of Task 2, revisit the recommendations from the BMP Plan and determine whether the recommended structural BMPs need to be modified in design or other structural BMPs need to be considered in place of separators.

Task 4 – Present Findings: Review proposed recommendations with the proponent at two meetings.

Task 5– Draft Report: Prepare a report describing the sampling and evaluations conducted for the pilot program. Provide 15 draft copies of the report to the proponent for review including reviews by the MDC, MADEP, EOEA and USACOE.

Task 6 – Meetings: Attend two review meetings with the proponent groups to review draft report.

Task 7 – Final Report: Revise draft report based on proponent reviews and meetings. Provide 30 copies of final report to Proponent.

Watershed BMP Evaluation

Task 1 – Develop Design Flows: Using existing storm water model for the watershed delineate subbasin drainage areas for major discharge points into the Muddy River. Using the model, apply 0.5 inch rainfall to drainage area (in accordance with Storm Water Management Policy by MADEP) and determine subbasin peak runoff rates and volumes for design of structural BMPs.

Task 2 - BMP Sitting and Sizing: – Using information from technical guidance recommendations, select locations for structural BMPs on the major discharge drains for the Muddy River. Review locations of proposed BMPs to determine if there is sufficient area for the BMP to be constructed. Consider on-line, off line devices, as well as vortex devices and simple tanks.

Task 3 – Evaluate Structural BMP Plan: Re-evaluate the list of structural BMPs proposed by the Center for Watershed Protection to assess the effectiveness, implementation in the locations suggested. For BMPs proposed on private property, consider land ownership issues and regulations needed for implementation. Also, consider the structural BMPs listed in DEP's Stormwater Management Guidelines. Review guidance on BMPs and evaluate other structural BMPs that could be implemented in the Muddy River watershed area and suggest suitable sizing and locations for BMP implementation.

Task 4 – Watershed Load Model: Develop a simple watershed load model that is capable of simulating the existing solids loading to the Muddy River. We anticipate using the EPA NERP data for buildup runoff data as used in the Army Corps of Engineers study. Using the model, evaluate the reduction of solids loads to the Muddy River with various source and structural controls. Model should consider loading for major tributary drainage systems including Village Brook, Tannery Brook, Chestnut Street, Daisy Field, Huntington Avenue, Longwood Avenue and Emmanuel College drains. The purpose of the Annual Water Quality Monitoring program proposed by the Proponents is to provide data on the future success in reducing sediment loads on the river.

Task 5 – Develop Watershed BMP Plan: Based on the re-evaluation of BMPs develop a comprehensive BMP plan for the watershed that includes sources controls and structural controls. This work will include assessment of the current solids loadings to the river and the reduction of loadings with the implementation of the BMP plan. Siting, institutional constraints and property rights will also be considered in the BMP plan.

Task 6 – Present Findings: Review proposed structural BMP with Proponents at two meetings.

Task 7 – Prepare Cost Estimates, Funding and Implementation: Prepare estimates of probable construction costs of proposed BMPs. Identify proposed funding sources for structural BMPs and prepare an implementation schedule for design and construction.

Task 8 – Draft BMP Plan Report: Prepare draft evaluation report on the proposed BMP plan suitable for inclusion in the FEIR. Provide 15 draft copies of the report to the Proponent for their review including reviews by the MDC, MADEP, EOEA and USACOE.

Task 9 – CAC Meetings: Attend and present the analysis and conclusions at two CAC meetings

Task 10 – Meetings: Attend two review meetings with the proponent groups to review draft report.

Task 11 – Final BMP Plan Report: Revise draft report based on Proponent reviews and meetings. Provide 30 copies of final report to Proponent.

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition E

CITY OF BOSTON · MASSACHUSETTS

OFFICE OF THE MAYOR
THOMAS M. MENINO

June 25, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114

Dear Secretary Durand:

The Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation project is a vital public improvement for the City of Boston. The project described in the Environmental Impact Report filed in January 2002 with MEPA is critical to protecting the river and the park as well as the adjacent neighborhoods and institutions. I would like to reiterate the City's commitment to completing the work described in the DEIR by providing management for the project, contributing to funding the capital improvements and providing high quality maintenance.

The Memorandum of Understanding executed in November 1999 outlined responsibilities of the City, Town of Brookline and Commonwealth of Massachusetts. Since that time the City has been the lead proponent on the project and has provided $1.5 million for the Muddy River Project through the Boston Parks and Recreation Department and the Boston Water and Sewer Commission. This fulfilled the obligations anticipated at the time of the MOU.

Since that time the cost and scope of the Project have expanded. It is clear that the Proponents, both the city and town, and the state will need to provide additional funds. After careful review and consultation with the Army Corps, EOEA staff, the Town of Brookline, a funding formula was reached that is outlined in the DEIR. Boston would

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provide 87% of the local proponents' share of the capital costs; Brookline would provide 13%. Using that formula and the most recent expectations of Corps participation, capital funding responsibilities would be as follows:

Current Funding	6,900,000
ACOE	46,514,000
State	25,069,910
Boston	10,969,090
Brookline	1,625,000
TOTAL	$91,078,000

Even in a time of serious fiscal constraints, the Muddy River project is a priority for the City and its Departments. Boston has already included $200,000 in the Parks and Recreation Departments Capital Budget for Fiscal Year 2003. This is in addition to the $1.5 million commitment in the MOU. We are prepared to include $10,969,090 for the Muddy River project in the City's Five Year Capital Plan.

The Best Management Practices (BMP's) and Operations and Maintenance obligations are necessary to preserve the public's investment over the long term. The City's responsibilities for BMPs and maintenance, as specified in the Army Corps Decision Statement, will be included in the City's long range financial planning. The Boston Parks and Recreation Department, Boston Water and Sewer Commission, and Public Works Department will all address maintenance responsibilities for the Muddy River Improvements in their long range planning for operations.

In addition to the public funding commitments outlined above, the City will continue to work in partnership with private organizations and individuals to enhance the parks of the Muddy River and the Emerald Necklace as a whole. Emmanuel College has already committed $150,000 for maintenance and other institutions are exploring similar contributions. The Parks and Recreation Department will take a leadership role in developing these partnerships with the Emerald Necklace Conservancy, a nonprofit dedicated to improving and protecting Olmsted's Park system.

Given the significant growth of The Muddy River project, it is appropriate to revisit the initial MOU with the Town of Brookline and Commonwealth of Massachusetts. We are prepared to enter into an MOU as a basis for recommending additional appropriations to support these funding commitments for capital, maintenance and BMPs. Contingent on federal funding of at least $46 million and $25 million from the Commonwealth of Massachusetts, the City of Boston and Town of Brookline will enter into a revised MOU which will serve as the basis for future appropriations. Development of the MOU should

begin as soon as the Army Corps issues its Decision Statement in order to determine funding needs for Fiscal Year 2004.

In summary the City of Boston is prepared to:

Include $10, 969,090 for the Muddy River in its Five Year Capital Improvement Program;

Include BMP and Operations/Maintenance costs in long-term budget development;

Enter into an MOU with the Town of Brookline and Commonwealth of Massachusetts addressing the funding commitments outlined in this letter.

These actions are intended to reaffirm Boston's ongoing commitment to the Muddy River project and its goals of flood control, water quality and habitat enhancement, and historic preservation. If there is a need for further information, please contact Commissioner Justine Liff. Thank you for your consideration of this matter.

Sincerely,

Thomas M. Menino
Mayor of Boston

Phase One Waiver, Draft Record of Decision

Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
EOEA Number: 11865

Finding 5, Condition F

Emerald Necklace Environmental Improvements Committee

Committee Membership as Determined by Project Goals.
There are five goals for this project.
Two representatives are proposed for each goal.

1. Flood Control	(Public) MEMA (Private) Fenway Alliance (CAC Member)
2. Water Quality	(Public) DEP Waterways Division (Private) CRWA (CAC Member)
3. Habitat	(Public) Division of Fisheries (Private) New England Aquarium
4. Preservation	(Public) Massachusetts Historical Commission (Private) Boston Society of Landscape Architects
5. Management & Maintenance (BMP's)	Boston Green Space Alliance (CAC Member) Brookline Green Space Alliance (CAC Member) EOEA/DEM

Standing members:	Commissioner or their designee: Boston Parks Department, Town of Brookline Department of Public Works, MDC, EOEA, and DEM
Chairman:	Chosen on a rotating basis (2 year term)
Term of Committee Members:	3 years (staggered terms). Committee members appointed by respective agencies.
Funding:	Proponents will provide a maximum of $40,000 per year for duration of project construction and plant warranty period. The funding for the committee will come from project funds and be administered through the Emerald Necklace Conservancy to support the staff for this committee.
Timeline of Committee:	Period of construction plus maintenance funded by proponents. If member organizations see a need for continued existence beyond the construction and maintenance period, outside funding will be required.
Meeting Schedule:	Four meetings per year, or as needed per the determination of the Chair

Emerald Necklace Environmental Improvements Committee Duties

1. Advocate for sufficient budgets and other funding to support repairs and maintenance of the Emerald Necklace parks system.

2. Provide advice and technical expertise on historic preservation, scientific and technical issues related to the Phase I project of the Emerald Necklace Master Plan as they relate to: Flood Control, Water Quality, Habitat, and Preservation, and Best Management Practices.

3. Promote close coordination of activities among Boston and Brookline agencies, Boston Water and Sewer Commission, Metropolitan District Commission, and the MBTA.

4. Reviews annual updates and provide feedback to the Boston Parks Department, Town of Brookline Department of Public Works, MDC and EOEA.

5. Perform periodic review to evaluate efforts to meet the project goals as defined by the Final Environmental Impact Report.

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

Tel. (617) 626-1000
Fax (617) 626-1181
http://www.magnet.state.ma.us/envir

July 29, 2002

PHASE ONE WAIVER
FINAL RECORD OF DECISION

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
PROJECT MUNICIPALITY	:Boston and Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Town of Brookline
DATE NOTICED IN MONITOR	:February 9, 2002

As Secretary of Environmental Affairs, I have reviewed this project pursuant to the Massachusetts Environmental Policy Act (M.G.L. c.30, ss. 61-62H) and Section 11.11 of the MEPA regulations (301 CMR 11.00), and hereby **grant a Phase One Waiver** (as defined below), allowing the Charlesgate element of the project to proceed to the state permitting agencies and on to construction pending completion of the Final Environmental Impact Report (FEIR) for the entire project. This waiver includes certain conditions, explained more fully below.

Project Description

This project involves a range of physical improvements and management practices that will produce flood control, water quality improvements, habitat enhancement, landscape restoration, pedestrian and automobile circulation improvements, and building and bridge restoration along the Muddy River. The project constitutes the first phase in the long-term restoration of the entire system of Emerald Necklace parks in Boston and Brookline. This MEPA review is proceeding under a Special Review Procedure (SRP), established in a certificate dated April 29, 1999. Pursuant to the SRP Certificate, a Citizens Advisory Committee (CAC), representing a full range of interests, has been created.

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The CAC has met regularly over the past three years, and it has reviewed in detail drafts of the DEIR document. The project is also subject to a Memorandum of Understanding (MOU) executed in November 1999, by and between the Executive Office of Environmental Affairs, the Department of Environmental Management, the Massachusetts Emergency Management Agency, the Boston Water and Sewer Commission, the Town of Brookline and the City of Boston.

The project requires a variance under the Wetlands Protection Act, a 401 Water Quality Certification, a Chapter 91 License, and a Special Waste Determination from the Department of Environmental Protection (DEP), and a Section 404 permit under the Federal Clean Water Act from the U.S. Army Corps of Engineers. Because the Emerald Necklace parks are listed on the National and State Registers of Historic Places, the project is subject to review by the Massachusetts Historical Commission, the Boston Landmarks Commission, and the Brookline Preservation Commission. The project is receiving financial assistance from the Commonwealth; therefore, MEPA jurisdiction is broad in scope, extending to all aspects of the project with potential impacts on the environment.

As described in the DEIR, the project is comprised of six geographic elements: Charlesgate, the Back Bay Fens, the Riverway, and the three ponds within Olmsted Park (Leverett, Willow, and Wards Ponds). For each element, the DEIR analyzes alternative strategies (including a no-build alternative) and selects a Preferred Alternative.

Phase One Waiver Request

The SRP and ENF certificates allowed the proponent to request that the Charlesgate element of the project be allowed to proceed, provided that the environmental impacts and mitigation measures associated with the Charlesgate element were adequately described in the Draft EIR, and provided that the regulatory standards for a Phase One Waiver had been met. The waiver request was presented within the Draft EIR, and it was a subject of the comments received. As described in the Draft EIR, the Preferred Alternative for the Charlesgate element includes the removal of waterway obstructions under Ipswich Street; dredging 3,300 cubic yards (c.y.) of sediment and debris; and landscape rehabilitation.

Section 11.11 of the MEPA regulations provides that the Secretary may waive any provision or requirement of the Regulations not specifically required by MEPA, and may impose appropriate and relevant conditions or restrictions, provided that the Secretary finds that strict compliance with the provision or requirement would: (a) result in undue hardship for the proponent, unless based on delay in compliance by the proponent; and (b) not serve to avoid or minimize damage to the environment.

In the case of a partial waiver of a mandatory EIR review threshold that will allow the proponent to proceed with Phase One of the project prior to preparing an EIR, the Secretary, at a minimum, must base this finding on determinations that: (a) the potential impacts of Phase One, taken alone, are insignificant; (b) ample and unconstrained infrastructure facilities and services exist to support Phase One; (c) the project is severable, such that Phase One does not require the implementation of any other future phase of the project or restrict the means by which potential environmental impacts from any other phase of the project may be avoided, minimized or mitigated; and (d) the agency action on Phase One will contain terms such as a condition or restriction in a permit, contract or other relevant document approving or allowing the agency action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to commencement of any other phase of the project. In this context, I particularly note Section 11.01(2)(d) of the MEPA Regulations, which provides that a project shall not be phased or segmented to evade, defer, or curtail MEPA review.

Discussion

Comments received (both during the DEIR review and the review of the DROD) from CAC members and others have focused on two concerns associated with expediting the Charlesgate element in advance of the rest of the project. First, there is the concern that without an adequate commitment to BMPs and other maintenance measures, the investment in Phase One will be undermined by continued sedimentation, thus shortening the useful life of the improvements. Second, there is the concern over potential project segmentation. Although the Charlesgate element has clear value for flood control purposes, it will not in itself solve the significant flooding risks still faced by institutions and property owners upstream of the Fens. Thus, allowing

Charlesgate to proceed without adequate commitments to the implementation of basin-wide BMPs and maintenance, the timing of future phases, and the creation of an effective independent oversight entity, raises serious questions of efficiency and fairness. Accordingly, I have conditioned this FROD as set forth in Finding 5 below.

Findings

I have carefully reviewed the Draft EIR, the proponents' submittal of July 1, 2002 in response to the requirements of the DROD, and written comments received on both the DEIR and DROD (most of which support the early completion of the Charlesgate element). I am particularly appreciative of the thoughtful comments of the CAC, both collectively and by many of its individual members. Based on the foregoing, I make the following findings:

1. Provided that the conditions set out below can be satisfied, delaying the implementation of the Charlesgate element would result in an undue hardship, causing the loss of federal funds for the work, and delaying the implementation of the partial flood control benefits associated with this element.

2. The potential environmental impacts of the Charlesgate element, taken alone, are insignificant. The Charlesgate work does not independently meet any MEPA filing thresholds. The impacts are primarily short-term in nature and associated with the construction staging. The Charlesgate element involves a minimal amount of dredging, the impacts of which have been described in the Draft EIR and for which adequate mitigation can be developed during permitting. DEP has commented that the Charlesgate element appears to qualify for limited project status under the Wetlands Protection Act.

3. Construction equipment and materials may be transported on existing roadways; downstream flood storage capacity within the Charles River Basin is adequate; and upstream flood capacity will be improved through the implementation of basin-wide BMPs. Based on and subject to the foregoing, I find that ample and unconstrained infrastructure facilities and services exist to support the Charlesgate element.

4. Because construction of the Charlesgate element will not restrict the means by which potential impacts of future phases

can be avoided, I find, therefore, that the Charlesgate element is severable from the remainder of the project within the limited meaning of Section 11.11(4)(c) of the MEPA regulations. I note, however, that concerns remain over project segmentation that must be addressed in the conditions below.

5. All mitigation commitments associated with the Charlesgate element shall be incorporated into the agencies' Section 61 Findings and the associated Agency Actions (i.e., Permits or agreements concerning Financial Assistance). In addition, to ensure full compliance with MEPA, pursuant to Sections 11.01(2)(c) and 11.11(4)(d) of the MEPA Regulations, I included several conditions in the DROD. (Each of these conditions shall also be incorporated into the agencies' Section 61 Findings and other agency actions.) The proponents submitted additional information on July 1, 2002 in response to requirements of the DROD and a May 2002 follow-up letter from the Secretary.

EOEA staff have worked with the proponents, the members of the CAC, and others over the past several months to ensure that the spirit of these conditions has been met. As discussed below, much progress has been made, and I am satisfied that the proponents have met conditions 5a through 5e of the DROD. I am satisfied that enough progress has been made to allow the Phase I waiver to proceed. However, meeting condition 5f of the DROD will require more work. I have laid out the basic requirements for meeting this condition below. EOEA will continue to work with the proponents, the CAC, and others to ensure development of an appropriate structure for an independent review committee.

The requirements of the DROD were as follows:

a. Creation of a workplan and schedule for implementation and maintenance of basin-wide non-structural BMPs.
b. The Draft EIR does not include detailed discussion of maintenance issues for the Charlesgate element. The workplan needs to expand upon the Draft EIR treatment of maintenance for the Charlesgate element, and address any permitting requirements of the Metropolitan District Commission.
c. Commitment to completion of basin-wide evaluative studies for potential structural Best Management Practices (BMPs) during calendar year 2002, to ensure that the results of the studies will be fully reflected in the Final EIR.

d. To maintain the project schedule described in the Draft EIR and prevent undue segmentation, the Final EIR needs to be submitted to EOEA no later than January 31, 2003. I note that this filing condition should not be considered unreasonable or burdensome, as it is consistent with the proponents' anticipated filing timeframe as mentioned in the Draft EIR.

e. Creation of a dedicated funding source to support the levels of basin-wide BMP implementation and other maintenance measures required to prevent future degradation of the resource and the planned improvements. As suggested by the Town of Brookline, I suggest that the funding commitment be evidenced through amendment of the MOU.

f. Implementation of a management structure, through the creation of a permanent independent oversight body, representing the full range of stakeholders. This body should contain at a minimum the following members: Boston and Brookline parks agencies; Metropolitan District Commission; EOEA; DEM; Emerald Necklace CAC representatives from both communities; Boston and Brookline Greenspace Alliances; Massachusetts Historical Commission; Boston Landmarks Commission; Brookline Preservation Commission; Emerald Necklace Conservancy; Charles River Watershed Association; and Boston Society of Landscape Architects. The oversight body shall have an independent staff, funded by the proponents.

With respect to condition 5a, I find that the proponents have complied with the requirements of the DROD. I note remaining concerns over towing policy in the Fenway neighborhood, and the role of the MDC in catch basin maintenance and repair. I anticipate that the issues involving towing policy will be addressed in the Final EIR. I anticipate that issues involving MDC maintenance of catch basins will be addressed during the process of amending the 1999 MOU.

With respect to condition 5b, I find that the proponents have complied with the requirements of the DROD. I commend the proponent for the high standard developed for short-term maintenance of the Charlesgate area. I consider the standard developed as an excellent minimum standard to apply to the long-term maintenance of the Charlesgate area and other project subareas.

With respect to condition 5c, I find that the proponents have complied with the requirements of the DROD. I note the concerns raised that the study of structural BMPs is narrowly focused on particle separators. In the FEIR, the proponents should fully evaluate the effectiveness of a wide range of structural BMPs within the Muddy River watershed area. I encourage the proponents to allow DEP and other appropriate agencies review and comment on a draft of this plan prior to its submittal with the FEIR.

With respect to condition 5d, I find that the proponents have complied with the requirements of the DROD. The proponent shall submit the FEIR by January 31, 2003. I note the importance of including the CAC review of documents in the project schedule. I ask that the proponent provide individual chapters of the FEIR to the CAC for review as they become available, but with enough time for the CAC to fully review the material while meeting the filing schedule committed to by the proponent.

With respect to condition 5e, I find that the proponents have complied with the requirements of the DROD. I commend the proponents for their financial commitments to this important project.

With respect to condition 5f, I am pleased that the proponents have committed, in the July 1 letter, to the establishment of a committee that would serve as an independent oversight entity. However, the comments from the CAC and others show continuing concerns over the structure and function of the committee that must still be addressed. The resolution of these issues will be a condition of the Commonwealth's continued considerable financial assistance for the project.

Given the complexity and sensitivity of these issues, I am extending the time period by which all outstanding issues related to the management and structure of the committee must be resolved until December 1, 2002. This should allow sufficient time to resolve the issues and incorporate any appropriate commitments into the FEIR. I endorse the suggestions of the CAC as to a phased and inclusive process, including significant input from prospective committee members themselves.

I wish to clarify how the role of this committee will be distinct from those of the CAC and the Technical Advisory

Committee (TAC).[1] It will participate in the development of performance standards and identify benchmarks to identify progress; provide independent review on a periodic basis to evaluate efforts to meet the project goals, including long-term maintenance and management goals; monitor and evaluate compliance with the provisions of federal, state, and local permits and approvals (including Section 61 Findings); and promote close coordination of activities among Boston and Brookline agencies, the MDC, and the MBTA. The owners of the resources (Boston, Brookline, and the MDC) will of course continue to manage the resources under their control, with the flexibility they need to make day-to-day decisions and implement long-term management and operational policies.

I also want to highlight some of the points about committee structure and function that have emerged from the comments of the CAC and others, which I expect will serve as the basis for the forthcoming discussions:

- While the committee described in the July 1 letter has many of the members recommended in the DROD, it still lacks at-large community representatives, or representatives of local preservation organizations. I also suggest inclusion of a TAC representative, to provide further coordination among all entities. The committee should elect its own chair.
- The committee should meet often enough to ensure meaningful periodic reviews (initially, I suggest every other month), and its overall length should extend a sufficient time beyond the completion of improvements described in the FEIR (at a minimum, five years).
- The funding level and physical location for the committee staff should ensure that the committee staff has appropriate skill levels and independence from individual committee members.

Based on the above findings and subject to the above conditions, it is my judgment that the waiver request has merit, meets the tests established in 301 CMR 11.11, and will serve to advance the interests of the Massachusetts Environmental Policy

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1 The CAC, whose members represent a diverse range of backgrounds, experiences, and affilations, provides public input on the full range of environmental issues both to the proponent, as it prepares the MEPA submissions, and to EOEA, as it reviews the submissions. The TAC is the forum for addressing detailed technical issues of project permitting, design, and implementation.

Act. Therefore, I hereby grant the Phase One Waiver for the Charlesgate work subject to the aforementioned findings and conditions.

July 29, 2002
Date

Bob Durand

Comments received on the Draft EIR (continues on next page):

03/01/02 Natural Heritage and Endangered Species Program
03/07/02 Edward Cutler
03/08/02 Division of Marine Fisheries
03/21/02 Lisa Tucker-Kellogg
04/05/02 Town of Brookline Department of Public Works
04/08/02 Northeastern University
04/08/02 Medical Academic and Scientific Community Organization
04/08/02 Friends of the Muddy River
04/08/02 Frances Shedd-Fisher
04/08/02 Arleyn Levee
04/08/02 Fenway Studios, Inc.
04/08/02 Boston Greenspace Alliance
04/08/02 Emerald Necklace Citizens Advisory Committee
04/08/02 Brookline Greenspace Alliance
04/08/02 City of Boston Environment Department
04/08/02 Jeffrey Ferris
04/08/02 Charles Beveridge
04/08/02 Metropolitan District Commission
04/08/02 Charles River Watershed Association
04/08/02 The Emerald Necklace Conservancy
04/08/02 Precinct One Town Meeting Members, Town of Brookline
04/08/02 Roger Frymire
04/08/02 Department of Environmental Protection NERO
04/08/02 Department of Environmental Management
04/08/02 Town of Brookline Selectmen
04/09/02 Massachusetts Emergency Management Agency
04/09/02 U.S. Department of the Interior, National Park Service
04/09/02 Massachusetts Historical Commission
04/09/02 Town of Brookline Conservation Commission
04/09/02 Friends of the Carlton Street Footbridge
04/09/02 Town of Brookline Preservation Commission
04/09/02 Brookline Village Action Groups
04/09/02 High Street Hill Association

04/10/02 Museum of Fine Arts Boston
04/10/02 The Fenway Alliance
04/11/02 Boston Water and Sewer Commission
04/12/02 YMCA of Greater Boston
04/12/02 Massachusetts Historical Commission

Comments received on the DROD:

05/03/02 Boston Environment Department
05/21/02 Brookline Greenspace Alliance
06/10/02 friends of Leverett Pond
06/11/02 Michael Dukakis
06/11/02 Charles River Watershed Association
06/12/02 Friends of the Muddy River
06/13/02 Arleyn Levee
06/18/02 Friends of the Carleton Street Footbridge
06/18/02 High Street Hill Association
06/21/02 Boston Greenspace Alliance
07/02/02 Hugh Mattison
07/09/02 Ed Cutler
07/17/02 Edward Burke
07/18/02 Katherine Mathew
07/19/02 Emerald Necklace Citizens Advisory Committee
07/23/02 Charles River Watershed Association
07/23/02 Brookline Conservation Commission
07/23/02 Brookline Greenspace Alliance
07/23/02 The Emerald Necklace Conservancy
07/25/02 Emerald Necklace Citizens Advisory Committee

BAD/ASP/asp

MUDDY RIVER RESTORATION PROJECT



Mr. Robert Durand
Secretary of Environmental Affairs
Attention: MEPA Office
251 Causeway Street, Suite 900
Boston, MA 02114

November 27, 2002

Re: Emerald Necklace Environmental Improvement Master Plan and Phase I Final Record of Decision Finding 5f, Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project, EOEA No. 11865

Dear Secretary Durand,

This letter addresses conditions that were outlined in section 5f of your July 29, 2002 Phase I Final Record of Decision (FROD) for the Charlesgate portion of the Muddy River project. This finding required the formation of an independent oversight committee to serve as a forum in which ongoing maintenance and management issues related to the project could be publicly discussed. The committee, referred to in this letter as the Environmental Improvements Committee (EIC), has assembled and held several meetings. A letter dated August 21, 2002 from Jay Wickersham highlighted several outstanding issues related to the management and structure of the committee that were to be resolved by December 1, 2002. Each of these outstanding issues is addressed below.

- ***Committee members must be identified and notified.***

On September 20, 2002 the proponents sent letters of invitation and background information on the Muddy River Restoration Project to the following agencies and organizations: Boston and Brookline parks agencies; Metropolitan District Commission; EOEA; DEM; DEP; the Emerald Necklace Citizen Advisory Committee; the Emerald Necklace Technical Advisory Committee; Boston and Brookline GreenSpace Alliances; Massachusetts Historical Commission; Boston Landmarks Commission; Brookline Preservation Commission; Emerald Necklace Conservancy; Charles River Watershed Association; The Fenway Alliance; Northeastern University Facilities; Massachusetts Audubon Society; the New England Aquarium; Boston Society of Landscape Architects; Massachusetts Department of Fish and Wildlife; and the Massachusetts Emergency Management Association. These letters asked each agency or organization to provide a representative to serve on the Environmental Improvements Committee.

- ***The committee must have held its first meeting and elected a chairperson.***

The Environmental Improvements Committee has held four meetings. The first meeting of the Environmental Improvements Committee was held on October 17th, 2002. To ensure that the committee met its December 1st deadlines, the proponents hired a professional meeting facilitator to lead the first three meetings. The facilitator was Peter A. Smith, an experienced management and organizational development consultant who has worked internally at such companies as Sun Microsystems, Fidelity Investments and Analog Devices. The committee also held meetings on October 30th, November 14th and November 25th.

The EIC has elected Kate Bowditch, of the Charles River Watershed Association, to serve as the committee's Chairperson. The committee accepted self-nominations for the position of chair. On October 30th, the voting members of the committee unanimously voted to accept Ms. Bowditch's nomination. The EIC chairperson will serve a one-year term.

- ***A job description for the committee staff should be developed by the committee membership.***

The EIC has developed a job description for the committee staff person. The Emerald Necklace Citizen Advisory Committee developed a draft job description that served as the template that the EIC refined through further discussion and research. In addition, the committee reviewed job descriptions for the Town of Brookline Conservation Administrator, the Central Artery Oversight Committee, the Water Supply Citizens Advisory Committee and the Park Plaza Urban Renewal CAC. The meeting facilitator led the committee in a discussion about the role of the committee staff person, and the desirable qualifications and characteristics of the staff person. The final job description was unanimously approved by the voting members of the EIC on November 14th, and is attached as Appendix A.

- ***Appropriate funding for the committee staff should be identified and made available.***

The proponents have developed a funding strategy for the EIC staff that meets the needs of the committee and the project. The roles of the committee is to serve as a forum in which ongoing maintenance and management issue could be publicly discussed to add an extra level of assurance that the Commonwealth's financial investment in the future of the Muddy River and the improvements associated with the Muddy River project would have the maximum possible design life". Given that the Army Corps. of Engineers has not yet released a Decision Document regarding the project and has not commenced design, it is the proponents understanding that the project could not feasibly commence until at least May 2004. Many of the tasks assigned to the committee and, by extension, its staff is related to monitoring construction activities. When these activities begin the responsibilities of the EIC will increase. The committee agreed that a part-time staff was appropriate at this time. They have set an annual budget of $75,000 per year, however their proposal is to enter into a 6-month contract. The budget that they have set for that period is $37,500, with the following allocations - $5,000 for office expenses, $10,000 for consultant fees, and $22,500 for staff. It should be noted that this rate translates into a full time equivalent of $80,000. The Town of Brookline is committed to $20,000 per year. The City of Boston has agreed to the original $20,000 plus an additional $15,000 from capital project dollars.

Recreation Department to ensure funding if the decision from the Army Corps of Engineers is further delayed after July 1. It should be noted that the request of operating funding must be approved by the City Council. These commitments, combined with the $20,000 committed by the Secretary's office through Betsy Shure Gross, will meet the budget set by the EIC.

- ***An appropriate site for the staff person and committee meetings must be identified.***

The committee has selected a site for the staff person and a site in which the EIC will hold its meetings. The committee received two offers for staff person location. The Emerald Necklace Conservancy (ENC) made one offer, and one came from the Massachusetts Office of Dispute Resolution (MODR). The committee also considered employing a staff person who worked from a home office. At its third meeting the EIC voted to select the Emerald Necklace Conservancy for a six-month trial basis, on the condition that the staff person receive his or her own discrete office space, a phone line, a fax line and an Internet connection; and that appropriate signage be installed that demonstrates to the public that the EIC and the staff person are separate from the Emerald Necklace Conservancy. However at the fourth meeting the EIC revisited its decision based on language on page 8 of the FROD, that stated that the "physical location for the committee staff should ensure that the committee staff has appropriate skill levels and independence from individual committee members". After careful consideration, the EIC voted to require that the contracted staff should provide his/her own office facilities and revised the budget to reflect that change.

Since its first meeting at the Metropolitan District Commission, the EIC has been holding its meetings at the Brookline Water and Sewer Garage Facility on Netherlands Road in Brookline. At its November 14th meeting, a motion was made to use this facility as the default meeting location unless and until a future staff person wants to move. Committee members unanimously approved this motion. The EIC favors this meeting location due to its accessibility, parking and proximity to the Emerald Necklace. The committee did not believe that it would be unduly influenced by its meeting location.

The Environmental Improvements Committee and the proponents look forward to working together on this exciting project.

Sincerely,

Antonia Pollak
Acting Commissioner
Boston Parks and Recreation Department

cc: Jay Wickersham, MEPA
Thomas DeMaio, Erin Chute, Town of Brookline
EIC Members
CAC Members
Steve Lipman, DEP
Lorraine Della Porta, Massachusetts Office of Dispute Resolution

Appendix C

Appendix C
Emerald Necklace Citizens Advisory Committee Meeting Materials

Meeting Dates:

October 3, 2001

October 29, 2001

November 14, 2001

January 7, 2002

January 15, 2002

January 22, 2002

February 4, 2002

February 13, 2002

February 21, 2002

February 28, 2002

March 6, 2002

March 13, 2002

March 26, 2002

April 2, 2002

June 18, 2002

July 16, 2002

July 22, 2002

August 13, 2002

September 11, 2002

September 25, 2002

October 9, 2002

October 22, 2002

November 6, 2002

November 20, 2002

December 4, 2002

December 11, 2002

MEMORANDUM

DATE: September 17, 2001

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice, Other Information

Wednesday, October 3, 2001

Location: Northeastern University
Room To Be Confirmed
(notice to be sent next week)

Agenda Topic: --Project Update
--Discussion with Laura Rome, MEPA Office

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:00 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Meeting Preparation: Jane Wells, your CAC Facilitator, has requested that CAC Members prepare a list of their points of discussion so that Jane with CAC members could form the agenda at the beginning of the meeting. If anyone has their points of discussion prepared before the meeting, please forward to Jane.Wells@state.ma.us.

MEMORANDUM

DATE: September 25, 2001

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice, Other Information

Wednesday, October 3, 2001

Maureen and Richard J. Egan Engineering /Science Research Center
Raytheon Amphitheater -- Room 240
NORTHEASTERN UNIVERSITY CAMPUS

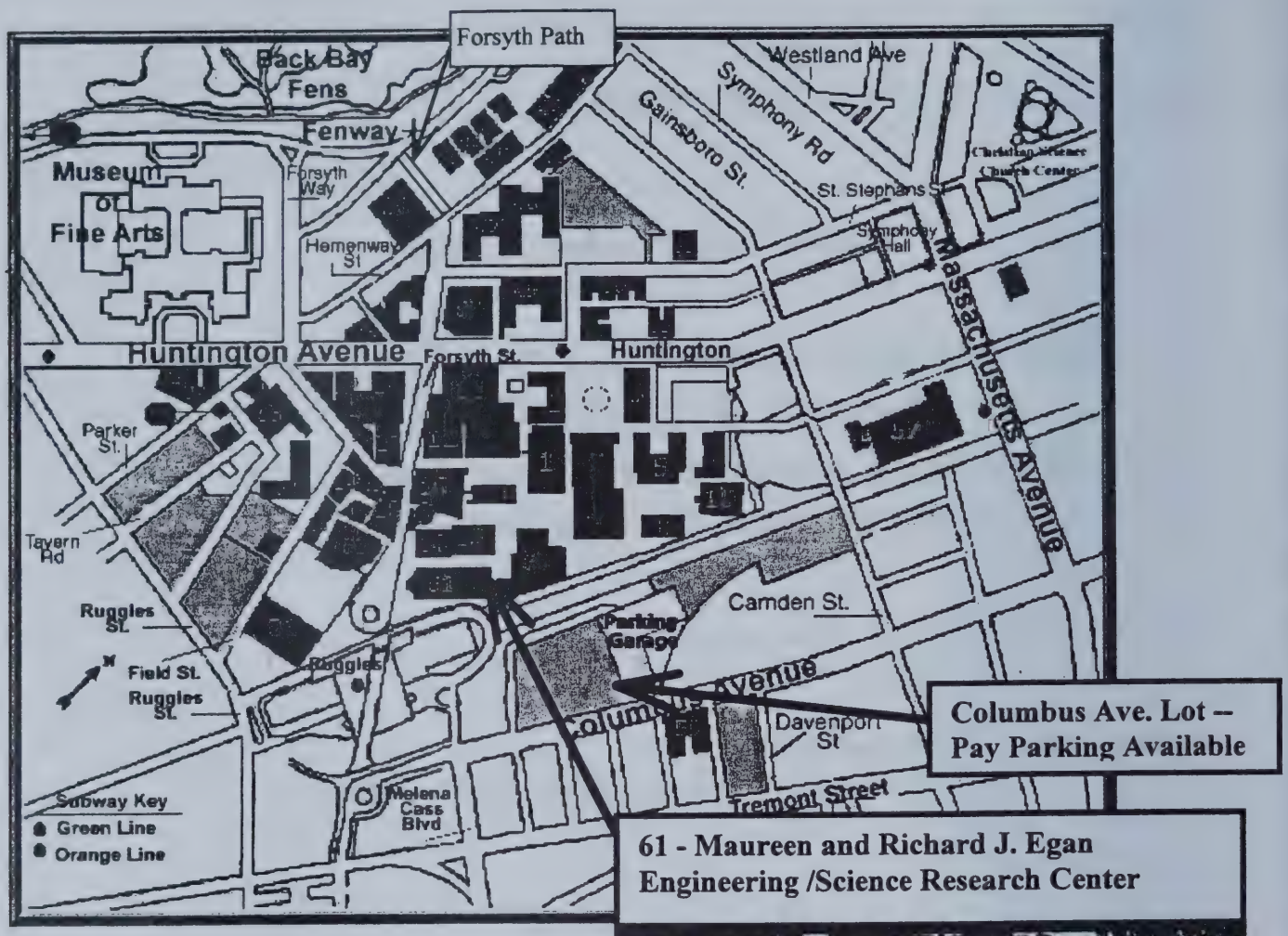
~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: --Project Update
--Discussion with Laura Rome, MEPA Office

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
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If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
Maureen and Richard J. Egan Engineering /Science Research Center
Raytheon Amphitheater -- Room 240
NORTHEASTERN UNIVERSITY CAMPUS





From The Fenway (walking):
Cut through Forsyth Path and cross Hemenway Street. Follow Forsyth St. to end. Egan Center is on left just before Ruggles Station.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Left on Forsyth St. and walk to end. Egan Center is on left just before Ruggles Station.

From the Orange Line:
Egan Center is next to Ruggles Station.

MEMORANDUM

DATE: October 19, 2001

TO: Emerald Necklace Citizens Advisory Committee

FROM: John Burckardt, Project Manager

RE: Project Update and Information

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1. *Margaret Dyson Becomes Director of Historic Parks for Boston Parks & Recreation Department*

Margaret Dyson, formerly a member of the Emerald Necklace Citizens Advisory Committee and President of Historic Massachusetts, Inc. and, has started in her new position as Director of Historic Parks. Margaret brings a wealth of experience in the field of historic preservation, as well as particular knowledge of the Muddy River project. She takes over the position formerly held by Fran Beatty. Margaret looks forward to greeting all the members of the CAC at the upcoming October 29th meeting.

2. *Other Changes on the CAC*

Besides Margaret's change in role from CAC member to the Boston Parks Department, there were three other recent changes on the CAC. Over the summer, Paul Mentag resigned his position with the Fenway Alliance and also his seat on the CAC. Kelly Brilliant takes over for Paul as Executive Director of the Fenway Alliance and will also sit on the CAC. Richard Heath has resigned from the CAC and asked that I distribute his resignation letter (which is attached) to CAC members. The Secretary of Environmental Affairs has written a letter in response to Richard's resignation and that letter is also attached. Finally, Jane Pfister has also resigned and her resignation e-mail is attached.

3. *Maintenance and Management*

Tim Marshall is working on a draft of his work to date analyzing the existing level of management and measuring the work effort needed. *Look for a draft report in the mail about Wednesday, October 24th.* The CAC meeting will be:

Monday, October 29, 2001
Kerr Hall,
96 The Fenway, Boston
Northeastern University Faculty Center

The meeting will also include a discussion of Clarissa Rowe's research into various models of park system management.

A follow-up **CAC meeting** will be held on **Wednesday, November 14, 2001.**

4. *Back Bay Yard – Certificate on the Notice of Project Change (NPC)*

The Certificate indicates that the sewer separation work in the yard does not require further environmental review. The next step is a filing of a Notice of Intent with the Boston Conservation Commission, so that an Order of Conditions may be issued allowing this work to proceed. I will inform the CAC of the date of the Boston Conservation Commission hearing regarding this work.

5. *Agassiz Bridge – Certificate on the Notice of Project Change (NPC)*

The Certificate indicates that the landscape work at the bridge does not require further environmental review. Boston Parks & Recreation Department will set up meetings to review maintenance work plans with staff at the Executive Office of Environmental Affairs (EOEA) and the Department of Environmental Management (DEM). The purpose of these meetings will be to determine if the proposed maintenance is consistent with the ENF and MEPA regulations.

Attachments:

1. Certificate of the Secretary of Environmental Affairs on the Notice of Project Change for **Back Bay Yard**, Sewer Separation, dated September 21, 2001.
2. Certificate of the Secretary of Environmental Affairs on the Notice of Project Change for **Agassiz Bridge**, dated October 15, 2001.
3. Resignation letter from Richard Heath of the Citizens Advisory Committee.
4. Letter of the Secretary of Environmental Affairs to Richard Heath.
5. Resignation e-mail from Jane Pfister of the Citizens Advisory Committee.

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

Tel. (617) 626-1000
Fax (617) 626-1181
http://www.magnet.state.ma.us/envir

September 21, 2001

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ON THE
NOTICE OF PROJECT CHANGE

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, and Habitat Enhancement
PROJECT MUNICIPALITY	:Boston & Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Brookline Department of Public Works
DATE NOTICED IN MONITOR	:August 22, 2001

Pursuant to the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62H) and Section 11.10 of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC) submitted on this project and hereby determine that it **does not require** further environmental review.

As described in the Environmental Notification Form (ENF), the project involves a range of physical improvements and management practices that will produce flood control, water quality improvements, habitat enhancement, landscape restoration, pedestrian and automobile circulation improvements, and building and bridge restoration along the Muddy River and throughout the Emerald Necklace parks in Boston and Brookline.

According to the Notice of Project Change, the project change involves separation of the combined sanitary/storm sewer to a separate storm drain and sanitary sewer system at the Boston Park and Recreation Department's Back Bay Yard (near Park Drive and The Riverway). The purposes of the project are to (a) reduce inflow and infiltration to the combined sewer system; (b) eliminate potential health risks associated with the combined

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system, including risks associated with sewage surcharges causing backups into buildings and occurring during significant rainfall events; and (c) provide a new stormwater collection system at the site, including new deep sump hood catch basins, manholes, 300 linear feet of pipe, and infiltration chambers for groundwater recharge. There will be an overflow discharge to the Muddy River. The separation project will also reduce the volume of wastewater to be treated.

As requested by the Department of Environmental Protection and the Boston Water and Sewer Commission (BWSC), the proponent should provide its plans for the project to BWSC for its review and approval when the design is 50 percent complete. The plans should specifically address the potential impacts of releases from vehicles parked in the Back Bay Yard. I expect the proponent will also develop and implement an appropriate monitoring protocol, and that BWSC will have the opportunity to review it prior to its implementation.

I have reviewed the NPC and find that the changes described do not significantly increase the environmental impacts that are likely to result from the project. Based on review of the information provided by the proponent and others, I find that the potential impacts of this project do not warrant preparation of an Environmental Impact Report and can be addressed in the state and local permitting processes. No further MEPA review is required.

9/21/01
Date

Bob Durand

Comments received:

9/5/01	Boston Redevelopment Authority
9/11/01	Department of Environmental Protection
9/11/01	Boston Water and Sewer Commission
9/12/01	City of Boston, The Environment Department

BD/LER/lr

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

October 15, 2001

Tel (617) 626-1000
Fax (617) 626-1181
http://www.magnet.state.ma.us/envir

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE NOTICE OF PROJECT CHANGE

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, and Habitat Enhancement
PROJECT MUNICIPALITY	:Boston and Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Brookline Department of Public Works

Pursuant to the Massachusetts Environmental Policy Act (M.G.L. c. 30, ss. 61-62H) and Section 11.10 of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC) submitted on this project and hereby determine that it **does not require** further environmental review.

The NPC involves cutting and removal of plant material at the Agassiz Bridge over the Muddy River, some of which work has already been completed, and planting of new material. The new plant material will be based on the 1988 planting plan. The NPC also describes an interim maintenance plan that would be in effect until the review of the maintenance plan in the Environmental Impact Report (EIR) is complete. I remind the proponent that this work may require review by the Boston Conservation Commission.

As it is described in the NPC, the proposed work seems to be generally appropriate. However, the NPC does not address either the removal of the trees from the bridge's masonry or the subsequent repair of the masonry. I expect that this work will be described in the Draft EIR and undertaken by the proponent prior to the installation of new plantings. Finally, I anticipate that the Department of Environmental Management, which paid for the original plantings on the bridge, will from to time inspect the bridge to ensure that the interim management plan is effective.

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I understand that, as it determines what projects it will undertake, the Boston Parks and Recreation Department must consider the concerns of a wide range of constituencies. Nevertheless, I expect that future actions will be consistent with my April 29, 1999, Certificate on the Environmental Notification Form and with the *Emerald Necklace Parks Master Plan* (reissued April 2001).

I have reviewed the NPC and find that the changes described do not significantly increase the environmental impacts that are likely to result from the project. Based on review of the information provided by the proponent and others, I find that the potential impacts of this project do not warrant preparation of an Environmental Impact Report and can be addressed in the state and local permitting processes. No further MEPA review is required.

10/15/01
Date

Bob Durand

cc: Peter Webber, Commissioner, Department of Environmental Management
Boston Conservation Commission

Comments received: None

BD/LER/lr

RICHARD HEATH
Landscape Historian

42 Bourne Street • Jamaica Plain, Massachusetts 02130 • 617.522.7431

RECEIVED 9/24/01

September 23, 2001

Mr. Robert Durand
Secretary
Executive Office of Environmental Affairs
251 Causeway Street Suite 900
Boston,MA 02114

Dear Secretary Durand:

RE: Emerald Necklace Citizens Advisory Committee

I submit my resignation from the Emerald Necklace Citizens Advisory Committee.

It has come to my attention that the consultants hired this summer to prepare the revised management and maintenance operations plan for the DEIR were instructed by Park Commissioner Justine Liff not to talk to me.

This leads me to two alternate conclusions: that the deliberate exclusion of a CAC member from legitimate business of the CAC was approved by your office or that the Park Commissioner acted independently to circumvent and manipulate the CAC. Base upon my own experience, I am convinced that the Park Commissioner made that decision.

Consequently, I do not trust that my advice over the past two years was included or even taken seriously. Please remove my name from the Draft EIR and take my name off the letter I co -signed to the proponents. I do not like being treated like decoration. My reputation was used. No one on that entire Advisory Committee - much less the entire Boston Parks Department - has put as much care, effort and action to improve and preserve the Emerald Necklace over the past 26 years than I have; most significantly in Franklin Park.

No one has made more effort to study and implement maintenance management than I have. Indeed, those very consultants would not even have been hired had I not made my case to the CAC which pressured the proponents and their raft of consultants into rewriting the maintenance management section of the DEIR. This section - which took a year to write - was ridiculous. The CAC tore it apart line by line it was so careless.

The vast amount of time, effort and money that has been and will be invested in but *a fragment* of the entire Emerald Necklace (barely 200 acres out of the whole 1000 acres) will be wasted because there is not one professional land manager or natural systems manager in the entire Boston Park Department. The former Senior Landscape Architect for Historic Parks could not even tell us how many acres of turf and closed canopy there were in the Necklace.

Walk around the Emerald Necklace, sir, and look. Look up. Look around. Look at the trees. Look at the understory. Look at the turf and soils. Look at the water. Its all dying. Frederick Law Olmsted died in 1903 and the Boston Park Department is well on its way - aided and abetted by the MDC - in making certain that his great park system is dead along with him . . and along with it will die a great part of the quality of life of Boston.

Respectfully,

Richard Heath

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

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October 15, 2001

Mr. Richard Heath
42 Bourne Street
Jamaica Plain, MA 02130

Re: Emerald Necklace Citizens Advisory Committee

Richard,

Dear Mr. Heath:

I was sorry to receive your letter resigning from the Emerald Necklace Citizens Advisory Committee. The CAC has already made a valuable contribution to the quality of the Environmental Impact Report being prepared for the project, and I anticipate similar benefit from its continuing input.

Nevertheless, I understand that the strains of your new job and, especially, its substantial time constraints, have made it difficult for you to participate at your previously high level of involvement.

I hope that – as an individual member of the community – you will be able to review and comment on key elements of the Draft Environmental Impact Report once it becomes available. Your decades of commitment to the Emerald Necklace will prove critical to me as I undertake my review.

The time and effort that you have already contributed to this project have added enormously to the progress of the project. Should your schedule become more flexible in the future, your seat on the CAC will remain available to you.

Richard, Thanks for your advocacy. Bob

Very truly yours,

Bob

Bob Durand

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E-Mail Message

From: Pfister, Jane (ENV) [Jane.Pfister@state.ma.us]
Sent: Monday, October 15, 2001 5:14 PM
To: Durand, Bob (ENV)
Cc: Rome, Laura (ENV); jburckardt@ci.boston.ma.us
Subject: Emerald Necklace CAC resignation

Dear Sec. Durand:

I would like to resign my place (as a citizen of Brookline) on the Emerald Necklace Citizens Advisory Committee to allow someone to take my place who has more time to participate. I regret that I have not been at many meetings and apologize to the other committee members for being so slow to resign.

Best regards,
Jane Pfister

31 Linden Street
Brookline, MA 02445
617.734-2552

MEMORANDUM

DATE: October 31, 2001

TO: Emerald Necklace Citizens Advisory Committee

FROM: John Burckardt, Project Manager

RE: Meeting Announcement; Other Information

Wednesday, November 14, 2001

(Location to be announced)

Agenda Topics:

--Discussion of Revised Draft Park Maintenance Plan
--How to Review the "official" Draft Environmental Impact Report (DEIR) and Prepare Comment Letter to the Secretary of Environmental Affairs

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Other Information:

1. **Back Bay Yard** Sewer/Storm Drain Separation:
   Hearing of the Boston Conservation Commission
   Wednesday, November 7, 2001
   Boston City Hall (call 617-635-3850 for time)

2. **Boston Gatehouses** in Back Bay Fens:
   Boston Water & Sewer Commission will be issuing an **Environmental Notification Form** (ENF) in early 2002 regarding the rehabilitation of the exterior of these structures. The CAC will be notified when the ENF is published.

3. **CAC Review of Draft Environmental Impact Report** – a 21-page checklist of the issues raised in Secretary's Certificate on the ENF is enclosed. *Please review and decide if this is helpful for your review of the filing DEIR.*

CAC Review of Draft Environmental Impact Report

General Questions:

- Does the DEIR meet the prescriptions set forth in the Secretary's Certificate?
- Does the DEIR describe the project in a manner consistent with how the project was described at the CAC presentations?
- Does the DEIR incorporate the comments made by the CAC at the CAC meetings?
- Is there a more cost-effective way of accomplishing an element of the project, while still meeting the stated project objectives?

Specific Questions Based on the Certificate of the Secretary of Environmental Affairs on the ENF (dated 4/29/99).

Instructions:

1. For each topic in column (1), put a Yes or No in columns 2 and 3.
2. In the event of a response of No in column 3, CAC members should articulate reasons why the topic is not adequately addressed and include in the meeting notes. Put a Yes in column (4).
3. In some cases where there is a Yes in column (3), the CAC may wish to include comments. If so, put a check in column (4) and CAC member(s) should articulate the comments, which will be included in the meeting notes.

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Alternatives				
The EIR should expand on the alternatives analysis included in the ENF				
The EIR should analyze the no-action alternative to establish baseline conditions				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Project Permitting				
The EIR should include a brief discussion of each state permit or agency action required for the proposed project.				
The EIR should discuss how the project will meet the requirements and performance standards of each state permit.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Flood Control				
The EIR should identify specifically which proposed actions are intended to prevent or minimize flooding.				
The EIR should describe the potential impacts of flood control activities and impacts that have been considered that would avoid or minimize damage from flood control activities.				
The EIR should quantify additional flood water storage capacity to be gained by each area of proposed dredging and identify the locations of additional storage capacity areas.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Flood Control (continued)				
Where the project proposes clearing or expanding culverts, the EIR should specify the activities to be undertaken and the benefits projected to be gained.				
The EIR should include the sequence in which flood control projects will be implemented and should describe the criteria used to assign priority to flood control projects.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Stormwater/Water Quality Improvements				
The EIR should describe in detail the specific measures that will be undertaken to improve water quality, indicate the sequence in which they will be implemented and relate that sequence to the schedule for dredging.				
The EIR should describe potential impacts that may result from implementation of any stormwater or water quality improvements.				
The EIR should include a comprehensive maintenance management plan to ensure continuing effectiveness of any stormwater or water quality improvement measures and prevent new siltation, and identify funding sources for ongoing long-term implementation of the maintenance plan.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Wetlands Impacts/Variance Requirements				
The EIR should identify all wetland resource areas, including riverfront area and buffer zones, and delineate them on a reasonably scaled plan.				
The EIR should identify the significance of the resources, including value to flood control, storm damage prevention, pollution prevention, and fisheries and wildlife habitat.				
The EIR should quantify in appropriate units the project's estimated impact on each resource area.				
The EIR should provide information requested in DEP's comment letter regarding the project purpose(s) to be served by each instance of wetland alteration.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Dredging				
The EIR should describe the potential impacts of the proposed dredging and indicate the location of each area proposed to be dredged.				
The EIR should describe the purpose(s) of each area of dredging and alternatives to dredging.				
The EIR should compare the benefits of bank-to-bank, channel and spot dredging in terms of the goals of the proposed project.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Dredging (continued)				
The EIR should analyze a range of dredging techniques, describe the circumstances under which each would be the preferred alternative and indicate the criteria used to select dredging techniques for the project's various dredging areas.				
The EIR should clarify the purpose of any proposed overdredging and describe how the project will avoid damage to the clay liner during overdredging.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Dredged Material Management and Disposal				
The EIR should describe in detail how the proponent will manage dredged material.				
The EIR should analyze various locations for storage and dewatering in terms of technical suitability and the impacts on traffic, residents and historic impacts.				
The EIR should describe the proponent's plans for identifying and managing contaminated sediments, including proposed testing and on-site treatment and techniques for segregating contaminated sediments.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Dredged Material Management and Disposal				
The EIR should identify landfills that may be able and willing to accept dredged materials from the project.				
The EIR should include appropriate out-of-state landfills.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Phragmites Control				
The EIR should describe the methodology and results of the demonstration project and indicate how those results will inform the alternatives analysis for Phragmites control in this project.				
The EIR should describe the purpose and potential impacts of any proposed Phragmites control activities.				
The EIR should describe alternatives considered, explain why any alternatives are no longer under consideration and provide information related to the projected effectiveness of the preferred alternative.				
The EIR should also describe the maintenance plan to be implemented to ensure that the Phragmites does not return, including identifying funding sources for implementing the maintenance plan.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Habitat Improvement and Rare Species				
The EIR should identify which activities are intended to improve wildlife habitat and document what improvements will result from these activities, what impacts are likely to result from those activities and what alternatives have been considered that may avoid or minimize impacts from these activities.				
The EIR should describe steps that the project will take to avoid impacts to rare species.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Historic Resources and Landscape Restoration				
The EIR should describe the landscape restoration project in greater detail, including the proposed sequence of restoration projects and plans that demonstrate at least a conceptual level development.				
The EIR should identify any impacts on historic resources that may result from the implementation of this project, as well as any alternatives that have been considered that may avoid or minimize damage to historic resources.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Circulation Improvements				
The EIR should describe the proposed sequence of circulation improvement projects and plans that demonstrate at least a conceptual level development and include proposed stormwater management improvements in roadways and pathways.				
The EIR should describe potential impacts on the environment of the proposed circulation improvements, alternatives that have been considered and the sequence in which the improvements are proposed to be undertaken.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Charlesgate				
The EIR should detail the proposed activities in the Charlesgate area, their likely impacts on the environment, alternatives that have been considered, and include an analysis of the alternatives, a schedule and proposed mitigation measures.				
The EIR should include a construction mitigation plan, particularly regarding potential traffic impacts.				
The EIR should include site plans at an appropriate scale showing the boundaries of the proposed project area, as well as wetland resource areas and their buffer zones.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Charlesgate (continued)				
The EIR should include all information that the proponent will be required to provide to the Federal Emergency Management Agency.				
The EIR should contain a proposed Section 61 Finding relative to this phase.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Construction Impacts				
The EIR should describe impacts likely to result from project construction and steps that will be taken to avoid or minimize construction impacts.				
The EIR should describe the measures that the proponent will take to protect historically and environmentally significant landscape features and vegetation.				
The EIR should describe potential impacts on traffic and recreational use of the parks, especially during dredging, and the steps that will be taken to avoid or minimize these impacts wherever feasible.				
The EIR should describe steps that the proponent will take to minimize the project's adverse impacts on air quality, including ensuring the use of retrofitted construction equipment.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Maintenance and Monitoring				
The EIR should describe in detail the proponent's maintenance management plan for maintaining the restored condition of the Muddy River and the Emerald Necklace parks.				
The EIR should describe ongoing measures to prevent the recurrence of invasive vegetation that has been removed.				
The EIR should include commitments to maintain the restored historic landscape and structures.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Maintenance and Monitoring				
The EIR should include protocols for regular monitoring of environmental conditions to provide a continuous feed-back loop by which the effectiveness of management practices can be measured.				
The EIR should define the proportional financial responsibilities of the City of Boston and the Town of Brookline for all short-term and long-term maintenance and monitoring measures related to the project.				

(1) Topic	(2) Is topic included in DEIR?	(3) Is topic adequately addressed in DEIR?	(4) Is topic presented in light of the 5 Project Objectives	(4) Comments Noted
Mitigation				
The EIR should include a summary and appropriate commitments for each project impact within the MEPA jurisdiction described in the EIR.				

MEMORANDUM

DATE: January 2, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice

Please Note Location!

Monday, January 7, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic:

- Brief Overview of the DEIR
- Beginning of the Review of Draft Environmental Impact Report (DEIR) in preparation of a comment letter to the Secretary of Environmental Affairs

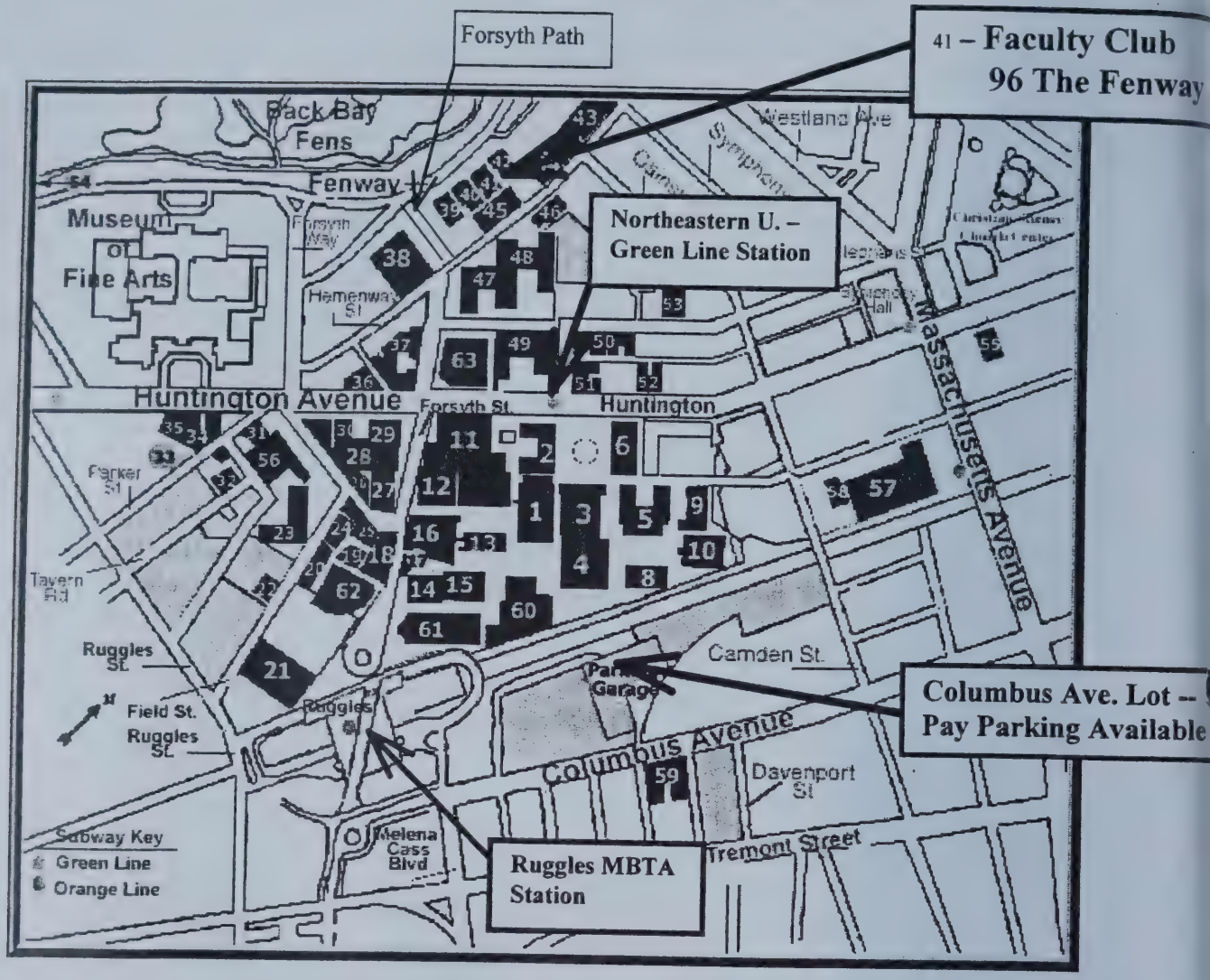
5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

CAC Members: Suggested reading: Executive Summary & Section 1

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):
The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

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Emerald Necklace Citizens Advisory Committee
Review of Draft Environmental Impact Report

Tentative Schedule of Meetings

Day	Date	Location	Topic(s)	Section(s) of DEIR	Comments
Mon.	07-Jan-2002	Faculty Center	Overview of DEIR; DEIR Review	Executive Summary; Section 1--Introduction	
Tue.	15-Jan-2002	Faculty Center	DEIR Review		
Tue.	22-Jan-2002	Faculty Center	DEIR Review		
Thur.	31-Jan-2002	Faculty Center	DEIR Review		
Mon.	04-Feb-2001	Faculty Center	DEIR Review (if needed)		
Wed.	13-Feb-2002	Faculty Center	DEIR Review (if needed)		
Thur.	21-Feb-2002	Faculty Center	DEIR Review (if needed)		
Thur.	28-Feb-2002	Faculty Center	DEIR Review (if needed)		

Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Monday, January 7, 2002
6:00p.m. - 8:30p.m

Agenda

I. **Welcome, Opening Remarks & Comments Received** 6:00 - 6:15

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. **Commissioners Address CAC & Give Overview** 6:15 – 6:45

- Commissioner Liff – Boston Parks & Recreation
- Commissioner DeMaio – Brookline Public Works Dept

III. **Announcements** 6:45 – 7:00

- It's a boy! – Margaret's great news
- Resignation – J. Hatfield
- Distribution of Updated CAC Directory
- Charles River Watershed Representation
- DEIR for Public – Jan 2002

IV. **Process Issues/Organization** 7:00 – 7:15

- Role of Proponenets and JFB During CAC's Review
  - Feedback/Guidance
  - Attendance at Meetings
  - Administrative Support/Mailings, etc.

V. **CAC Review** 7:15 –8:30

- Meeting Schedule
- Methodology/Approach to Review

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – January 7, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included at the end of this document.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Jane Wells was unfortunately not able to attend this evenings meeting

II Commissioners Address CAC & Give Overview

- Commissioner DeMaio, Brookline Public Works Department, regrets he was unable to attend this evening.

Commissioner Liff – Boston Parks & Recreation

- Thanks to the CAC for all their hard work. The work of the CAC has resulted in a number of revisions to DEIR and overall an improved document
- Relating to funding, Commissioner Liff has personally spoken to a number of municipal officials including the mayor and the City is committed to sharing in the financial backing for this project and is doing all they can within the constraints of the annual budget appropriations process.
- Commissioner Liff expressed the importance of keeping the momentum up in this once in a lifetime opportunity to restore this watershed area and it is her hope that the CAC's final letter to the Secretary will reflect the positive aspects of the project.
- In response to the letter from Bruce Conklin (second to last paragraph), dated December 26, 2001, Arlene Mattison commented that she would like to see a list of comments that the Proponents disagreed with from the CAC. John will make a list of those comments and will distribute to the CAC.

III Announcement

- Issues relating to Army Corps: John Burckardt reported that current indications from the Corps is that their recommended project would include dredging from bank to bank throughout the project. The Corps' Decision Document should be completed by January, with the work executed by the Corps under their mandates of flood control and environmental restoration. There is a question of whether all the proposed landscaping (in the DEIR) will also be included in the Corps' proposal, although the differences should be minor. Due to the federal budget cycle it will be crucial in the first year to get directed funding for the Corps in appropriations legislation. Construction would begin after funding is available and the Corps' bid process is completed by approximately spring of 2003. Money for Charlesgate from FEMA needs to be spent this year - dredging is anticipated to begin by the fall of 2002.

- June Hatfield from Boston GreenSpace Alliance has resigned and the Alliance is still looking for a replacement. Patrice Todesco will be in the interim contact.

- Charles River Watershed has a new representative – Dudley Bonsal.

- Upcoming meetings for the next two months were distributed to CAC members.

- Public review process will begin as soon as the DEIR is filed. Printing of the document will be completed between the 26th and the 31st with distribution occurring within the subsequent few weeks.

- A post card was distributed with five options on how they prefer to receive the DEIR. Copies are available at public repositories, on CD, as well as hard copies.

- Frances Kemp of the CAC requested information on how to recycle the first draft of the DEIR. John responded that he would look into recycling facilities at the Parks Department.

IV Process Issues/Organization

Role of Proponents and John Burckardt during CAC's Review - Should proponents attend CAC meetings during the review of the DEIR?

- CAC agreed that proponents are welcome to attend meetings to help answer specific issues that need to be clarified for the CAC. At a minimum a representative from Boston and Brookline should attend the meetings. The CAC would find it helpful if John Burckardt was present during these meetings.

V CAC Review

Meeting Schedule

January 15, Tuesday – Executive Summary, Section 1, Section 2 & Section 3

January 22, Tuesday – Sections 4, 5 & 6 (Charlesgate, Back Bay Fens)

January 31, Thursday – Section 4, 5 & 6 (Riverway & Olmsted Park)

February 4, Monday – Section 7 & 9

February 13, Wednesday – 8 & Appendix J

February 21, Thursday – Section 10 & clean-up

February 28, Thursday – Comment Letter

- In the interest of time, CAC agrees to stay late in order to maintain this schedule.
- Note that Sections 4, 5 & 6 will be reviewed according to the park in order to take a more holistic look at the document.

Methodology/Approach to Review

- CAC agrees to look at the document and set a schedule for review.
- CAC agrees to divide up DEIR into sections for review.
- At this phase in the process CAC comments and corrections cannot be included in DEIR.
- Comment that CAC should look at larger concepts and issues that need to be addressed in the DEIR.
- Hugh Mattison of the CAC commented that the letter should be used as a checklist from which to select issues to include in the comment letter.
- Meeting summaries will be distributed via e-mail to members of the CAC to those who have provided email addresses. Others will be sent Fist Class Mail.
- George Haggerty of the CAC commented that facilitator should take time at the end of the meetings to highlight salient points to be included in meeting summaries, which would be useful for compiling issues for the comment letter.
- Issues that aren't addressed in the CAC comment letter can be included in letters from individuals or their organizations.
- George Haggerty proposed that CAC should keep an errata sheet. This sheet would provide guidance on themes that emerge and would keep a record of errors and inaccuracies noted by the CAC.

- Consensus was reached that note keeping would be two-tier, including a detailed errata sheet and a listing of macro thematic issues.

- Arleyn Levee of the CAC commented that review of Vision Statement and Executive Summary should address specific issues, while the remainder of the document should be reviewed for content and broad-based issues.

- Request for email of listing of current CAC members, including new members.

Comments on Vision Statement

- Frances Kemp commented that the word linear was improperly used twice in first paragraph. Members of the CAC clarified the use of the word in this context.

- Frances Kemp also commented that the use of the term Emerald Necklace on page two last paragraphs is misleading. Should say, "now referred to" as the Emerald Necklace.

- The Emerald Necklace is not the oldest park system in the United States. It should say it is the "oldest remaining linear park in the Nation."

- George Haggerty commented that museums should be included in the list of places flooded by the Muddy River.

- George Haggerty commented that in second paragraph second page, that there should be a reference to the number of organizations/people who have been involved in the development of the Master Plan.

- CAC member comment made that quotations are unfortunately not attributed to source.

Other Business

- Hugh Mattison is involved in a group called the Friends of the Carlton Street Footbridge, working to restore the facility. There will be a meeting January 22nd at 8:00pm at the Brookline Town Hall. Hugh distributed pamphlet to CAC members.

Emerald Necklace Citizens Advisory Committee
January 7, 2002

Meeting Attendance – CAC Members

Name	Affiliation
Dudley Bonsal	Charles River Watershed Association
Kelly Brilliant	Fenway Alliance
Ed Burke	ROW
Edward Cutler	Brookline Resident
Frances Gershwin	
George Hagerty	Fenway Studios, Inc.
Frances Kemp	FCA, Friends of the Muddy River, Fenway Resident
Arleyn Levee	National Assn. For Olmsted Parks
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond
Lauren Meier	

Meeting Attendance – Non-CAC Members

Name	Affiliation
Tom Brady	Town of Brookline
Annie Blair	Town of Brookline
Angie Parker	BPRD
Mark Swartz	National Park Service, F.L. Olmsted NHS
Simone Auster	ENC
John Burckardt	BPRD

Name	Affiliation
Claire Flury	
Kara Wilbur	Fort Point Associates
Kirk Fallis	MODR
Loraine M. Della Porta	MODR

MEMORANDUM

DATE: January 8, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice; Other Information

Please Note Location!

Tuesday, January 15, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: - Review of Draft Environmental Impact Report (DEIR) in preparation of a comment letter to the Secretary of Environmental Affairs

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

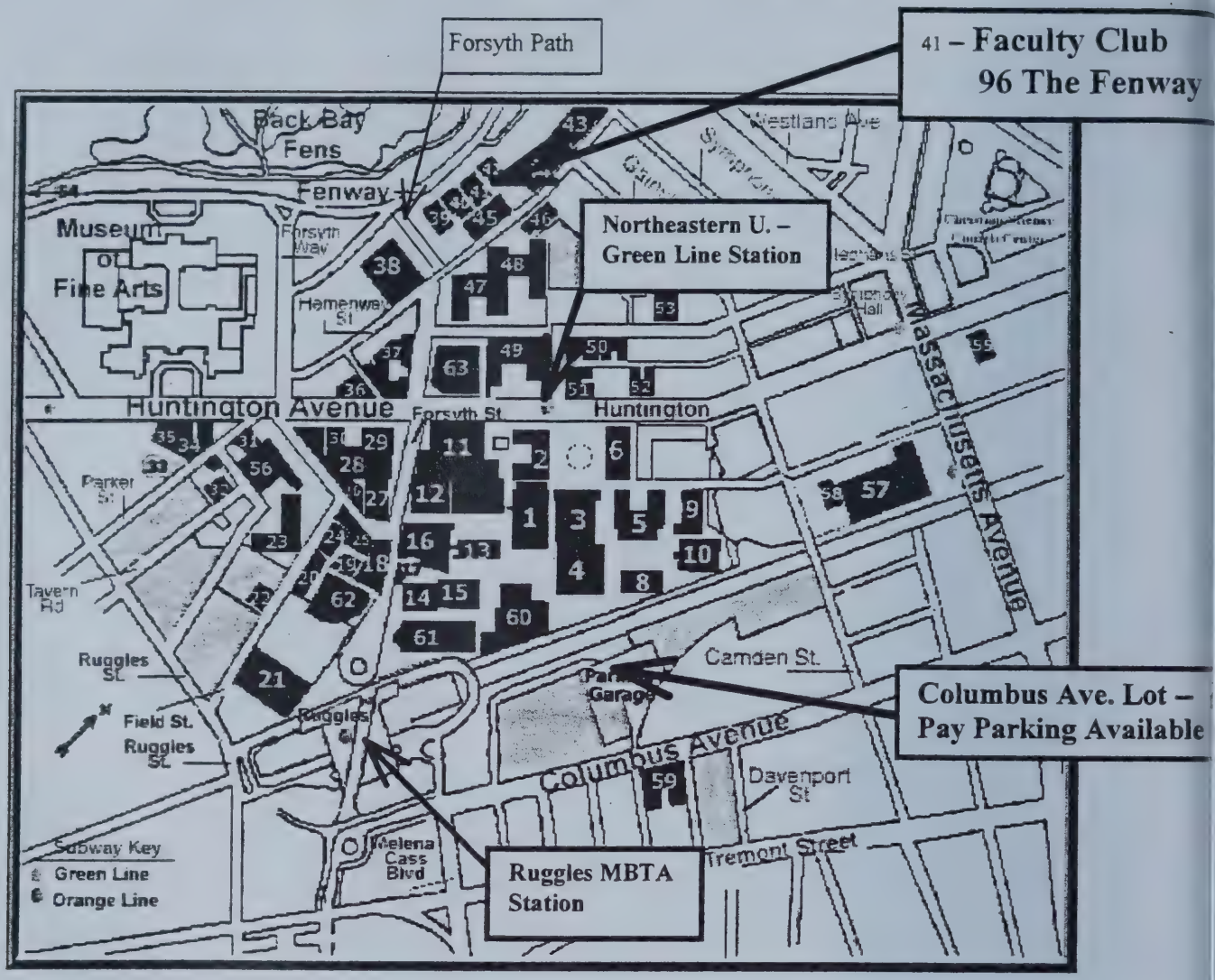
If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Notes:

1. Meeting Summary from Jan. 7th will be mailed separately.
2. CAC members: Read Exec. Summary + Sections 1 & 2 for the 15th.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



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Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Tuesday, January 15, 2002
6:00p.m. - 8:30p.m

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:15

Loraine M. Della Porta, MA Office of Dispute Resolution. CAC Facilitator
Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. Review of Draft Environmental Impact Report (DEIR) 6:15 - 8:15

- Brief Discussion of Methodology for Reviewing DEIR
- Executive Summary
- Section 1
- Section 2
- Section 3

III. **Discuss Assignment for Next Meeting** 8:15 – 8:30

- January 22, 2002 – Sections 4, 5 & 6 (Charlesgate/Back Bay Fens)

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – January 15, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie M. Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

II Review of Draft Environmental Impact Report (DEIR)

Brief Discussion of Methodology for Reviewing DEIR

- CAC agrees to review document page by page.
- Comments will be broken down into three categories 1) comments to be included in letter to Secretary, 2) editorial comments, and 3) mistakes/errors

Executive Summary

- 1) George Haggerty commented that he was disappointed with the style and quality of writing in the Executive Summary. He feels it does not adequately nor clearly summarize the project. Photographs and other visuals that were included are helpful, but writing falls short.
- 1) The Executive Summary provides project background and history but does not explain the scope of the project.
- 1) CAC agrees to include a comment about the inadequacies of the Executive Summary and plan to re-draft this part of the document themselves.
- 1) Concern expressed that Executive Summary shows a lack of attention to detail, which is vital to the success of the project.

- 1) CAC agrees that Presley's work should be highlighted and the re-write subcommittee will include it in the letter to the Secretary.

- 1) P. 23, wildlife resources, no mention of relocation of species. Meetings have not been held with the Audubon Society or the Aquarium. These contacts need to be made and volunteers recruited.

- 1) P. 25, top of the page, signage. At each of the construction staging areas there should be explicit signage, to be used as an educational tool, explaining the phase of project. A section of other types of public education should be included somewhere in the document.

- 1) P. 35, under funding, no mention about Proponent's commitment to increase maintenance costs. Should include phrase that states, "the project will not move forward until adequate funding is secured for maintenance".

- 2) P. 19 under Avenue to Route 9, first sentence, questions accuracy of statement "after dredging and grading original shoreline, will be restored to Olmsted's original plan."

- 2) Frequent mention of Olmsted plant list, but no mention of consultants work to adjust this list to include ecologically sensitive plants.

- 2) P.2, Hugh Mattison commented that he would like to have more description of structures (e.g. buildings, park furnishings, etc) included in the list.

- 2) Comment that construction work should start downstream – this is included in body of document but not in Executive Summary.

- 2) Would like to see a visual that summarizes master plan and illustrates what is included in Phase 1, and where the two project's overlap.

- 2&3) P. 29 & 35, heading "Paying the Bills" and "Here's the Plan" seem inappropriate terminology for a technical document.

- 3) Hugh Mattison - P. 2, boundaries is misspelled and on p.9 , plotting has been a major problem at Muddy River, second paragraph under Willow Pond. Also, Leverett Pond is listed as an "early action" this is inaccurate.

- 3) Would like to see lines drawn from list of parks to the Figure, indicating the names for the different sections of the park.

- 3) Disagrees with statement that Emerald Necklace is oldest park in the United States and with statement that Olmsted was the first architect.

- PARKING LOT - p. 12, will there be dredging under Cove Bridge? Wants clarification re. whether this is part of project.

- PARKING LOT (RIVERWAY) - P. 18, the culvert between Riverway and Sear's parking lot will cause disturbance. Shouldn't crossing be improved subsequent to construction?

- PARKING LOT – p. 19 end of Leveret Pond section, no mention that the shoreline of both islands should be re-built.

- PARKING LOT - P. 22, last sentence in first paragraph, violations of mitigation measures should be reported to more than the construction managers.

- PARKING LOT - Who is responsible for dealing with environmental problems? Who will be held accountable?

- PARKING LOT – Section 9, will the update go to the CAC?

- PARKING LOT - P. 22 - Temporary biological consequences due to construction are not mentioned. Should be more consistent with language describing impacts on fish. Sticklebacks re-establishment.

- PARKING LOT – MAINTENANCE, P. 31, under pest and rodent control section, add "or installation of fencing to add a barrier."

- Comment that CAC should focus on the broader issues of the Executive Summary and schedule a meeting with the Proponent to discuss ways to improve this section.

Section 1

- 1) No mention of historic landscape in list of objectives for Phase 1. There is no consistency in the terminology used for this objective. Want to emphasize commitment to all five objectives.

- 1) PARKING LOT – SECTION 10, P. 1.17, concern expressed that the wording of text does not adequately re-enforce that the project will not be segmented. Should express to Secretary concern that funding be secured in order to ensure that the project will not be segmented.

- 1) P. 1-32, disagreement with statement that the park is in poor condition because of "inattention." Boston and Brookline need to take ownership of park and accept responsibility.

- 1) In letter to Secretary, CAC could mention concern that the Proponents make a commitment to stewardship of the park system.

- 1) Concern that BMPs be included in phase 1.

- 1) In letter state that we are looking for a commitment from the Proponent relating to treatment objectives for historic resources - request of clarity for commitment.

- 1&2) P. 1-7, need advocacy language describing importance of Mater Plan in relation to the project. The document does not make it clear that the MRRP is based on the Master

Plan, which is highly supported publicly. CAC could make general comment that they support the framework of the Master Plan.

- 2) P. 1-6, question use of the word "spawn" in second paragraph.
- 2) Consistency and accuracy issue with use of the phrase Emerald Necklace. Should be defined in glossary of terms. Lauren Meier will contact Cynthia Z. to research this issue.
- 2) P. 1-8, restore Agassiz Bridge and plantings have been completed. Inaccurate statement, bridge has been completed, but plantings have not.
- 2) Under Table 1-1, Fenway South and Westland Avenue should be revisited and should include BMPs that will occur in Phase 1.
- 2) John Burckardt responded that Table 1-1 is vague because it was taken from the Master Plan, which described general ideas for improvements. This table can be reinvestigated now that the specifics for Phase I are defined.
- 2) Table 1-1 should be re-worked to reflect Phase 1 of the MRRP, not as defined in the Master Plan.
- 2) P. 1-17, Figure 1-4, did not outline boundaries of Charlesgate East and West.
- 2) P. 1-17, document uses both Phase 1 and Phase I. The document also uses the word Phase chronologically and geographically. Need to use different terminology for geographical phasing, e.g. zone, area, etc. Also need to differentiate between Master Plan phasing and MRRP phasing.
- 2) The document uses the terms preservation and restoration interchangeably throughout document. Need to be clear on how this project is defined. There are pieces of the project that will restore historic features of the park, however, this is not a restoration project. It is a rehabilitation project. Use of the word restoration could have regulatory consequences.
- 3) Table 1-1, Mother's Rest is not listed under correct location.

Section 2

- 2) P. 2-1, Inconsistent use of terms for historic resources - Maintaining historic and cultural resources.
- Out of time - No further discussion.

III Discuss Assignment for Next Meeting

- Carry over Sections 2 & 3 to next week, as well as Charlesgate portion of Sections 4, 5 & 6.

Attachment 1 – Attendees:

Citizens Advisory Committee:
Kelly Brilliant
Edward Burke
Isabella Callanan
Ed Cutler
Frances Gershwin
George Haggerty
Lauren Meier
Arlene Mattison
Hugh Mattison
Patrice Todesco

Others:
Loraine Della Porta, MODR
Jeannie Adams, MODR
Tom Brady, Brookline
Angie Parker, BPRD
John Burckardt, Project Manager
Kara Wilbur, FPA
Mark Schwartz, NPS/FLOHS

MEMORANDUM

DATE: January 16, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice; Other Information

Please Note Location!

Tuesday, January 22, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: Review of Draft Environmental Impact Report (DEIR) in preparation of a comment letter to the Secretary of Environmental Affairs

- Section 2
- Section 3
- Sections 4, 5 & 6 (Charlesgate portion of each section)

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

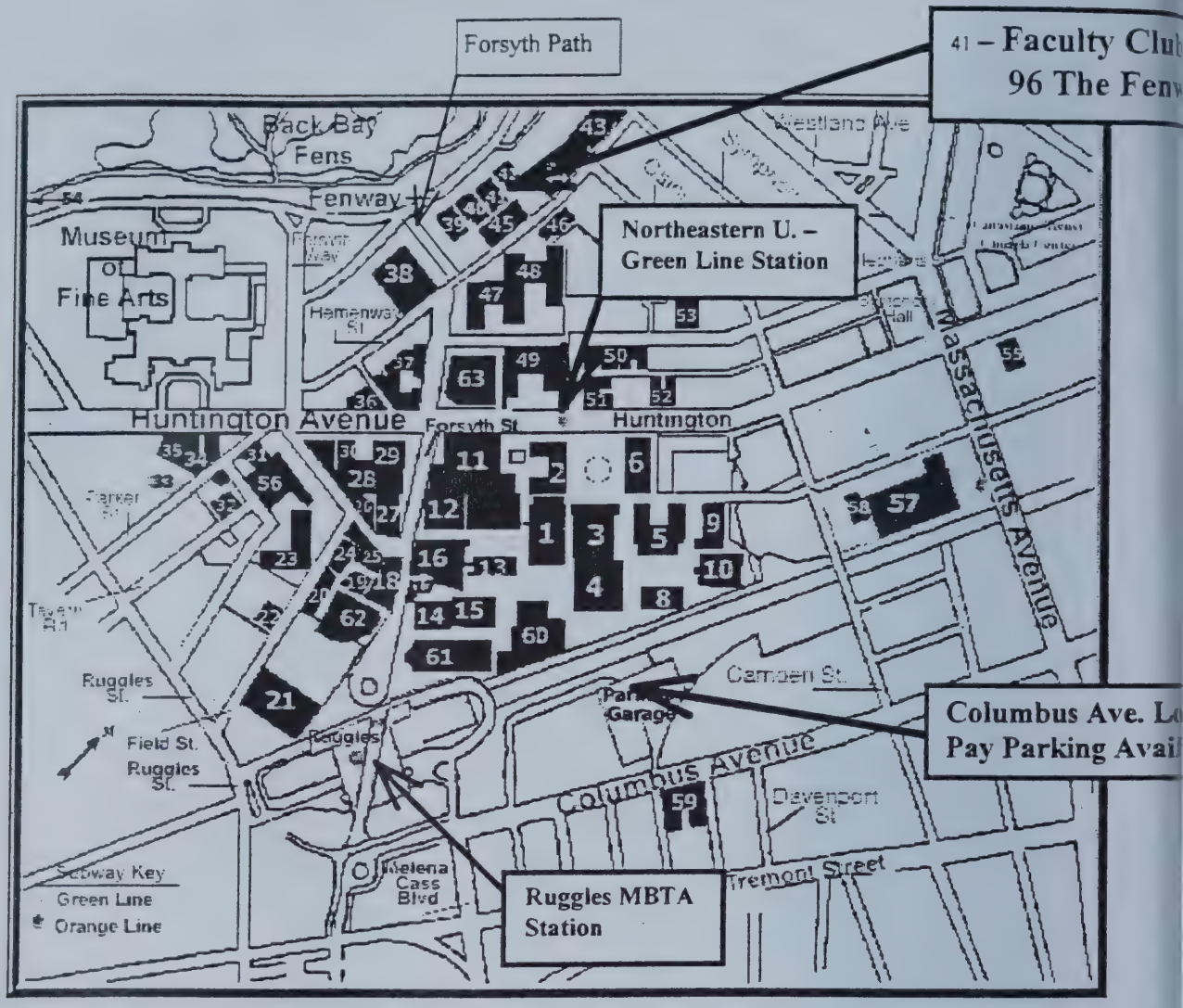
If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Notes:

1. Meeting Summary from Jan. 15th will be mailed separately.
2. CAC members: Read Sections 2 & 3 plus the Charlesgate portion of Sections 4, 5 & 6 for the 22nd.

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Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



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Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Tuesday, January 22, 2002
6:00p.m. - 8:30p.m

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:15

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. Dissemination & Review of Summary Notes – January 15, 2002 6:15 – 6:30

III. Review of DEIR 6:30 – 8:15

- Section 2
- Section 3
- Charlesgate Portion of Sections 4, 5, & 6

IV. Discuss Assignment for Next Meeting 8:15 – 8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – January 22, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Lorain M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie M. Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Comment on the draft memorandum dated January 15, 2002, from John Burckardt titled "Summary of Responses to CAC Comments on the 'pre-filing' Draft Environmental Impact Report (DEIR) dated April 2001:"

- Arlene Mattison - Three islands in Leverett Pond need to be stabilized, not just one. This issue needs to be brought to the attention of the consultants.

II Dissemination & Review of Summary Notes – January 15, 2002

- Page 2, bullet 3, "a section on public education should be included and detailed somewhere in the document.
- Page 2, last bullet, Olmsted was the first American landscape architect.

III Review of DEIR

Section 2

- Comments will be broken down into three categories 1) comments to be included in letter to Secretary, 2) editorial comments, 3) mistakes/errors. Questions posed by the CAC will be captured at the end of the summary and John Burckardt will obtain responses and report at next meeting.

- 1) First page, first paragraph, the language for objective 4, (maintaining cultural and historic resources vs. historic preservation) needs to be more consistent, with a stronger commitment to this objective.

- 1) Need more consistent terminology. Lack of consistency does not reflect a lack of commitment by the CAC.

- PARKING LOT 1) Concern with the Army Corps – need to reiterate that CAC does not support the Army Corps building a straight channel under any circumstance and that the CAC supports the consultant's recommendations.

- 1) Has the Army Corps agreed to use the alternatives proposed in the DEIR? John B. responded that the Corps has to produce their own environmental document, which will be open for public comment. At present, all indications we get from the Corps indicate that the project they will propose will be substantially the same as the proponent's project.

- 1) Page 2-14, CAC supports arched culverts, which respects the cultural and resource objective, as opposed to the box culverts.

- PARKING LOT, Section 5, Page 2-27, should indicate in letter what the CAC supports in terms of mechanics.

- 2) Page 2-32, third paragraph, George Haggerty of the CAC commented that he supports storage up-stream. Discussion as to whether CAC should make blanket statement that they support the chosen alternative or whether individual comments should be discussion later in Section 5.

- 2) Page 2-64, Arlene Mattison question how "no action" can be considered an alternative in the cleaning of Willow Pond. She argues that this is not a feasible alternative as it would be in violation of environmental regulations if the pond were not cleaned up. The cleaning of Willow Pond should be mentioned specifically as a reason for not following the "no action alternative."

- 2) Page 2-78, the banks of two of the islands in Leverett Pond need to be stabilized.

- PARKING LOT, 1) Page 2-82, George Haggerty recommended inserting language relating to ownership and inadequate maintenance and stewardship. CAC should discuss this issue at a later time.

- 1) Page 2-105, geese prevention - add fencing, because vegetation goes away in winter. The issue of how to deal with this problem needs to be investigated. Above and beyond vegetation, another means that doesn't limit access to the water should be considered. Arlene Mattison commented that there should be a state initiative to find a regional solution to the geese problem.

- 2) Page 2-106, typo -- second line from top, reduce storm water quantity, not quality.

- 1) Page 2-106, Arlene Mattison commented that CAC should state support of Brookline's water quality BMP plan to comply with EPA Phase 2 requirements. CAC agreed to make an opening general statement of support for ongoing BMPs in both Boston and Brookline.

- PARKING LOT – discontinue pesticide use on private property

- 2) Page 2-107, why is restoration of eroded paths on Riverway and correcting curb settings under the "other" category? John Burckardt clarified that this is part of the project and is addressed in Section 5.

- 1) Arlene Mattison commented that CAC should reinforce that this a park system and that jurisdictions should not override the entire system. Reinforce concept as "park as a whole."

- 1) Page 2-107, first paragraph, Brookline streets are adjacent to the park system and have some of the same problems as the MDC.

- PARKING LOT – Proponents should come up with an implementation plan relating to specific BMPs that arise relating to animal waste and leaf collection.

- 1) Arlene Mattison questioned whether Daisy Field could be used for something other than a baseball field that would be less damaging to the river (i.e. a soccer field).

Section 3

- PARKING LOT, BC Question, 1) – Is there any room for further discussion relating to the role of the CAC in this DEIR? Page 8-15, Accountability. CAC shouldn't depend on Proponents to determine the future role of the CAC and should discuss what their role will be. For discussion at subsequent meetings - what should be the future role of the CAC? See Attachment 2.

Section 4 - Charlesgate

- 2) Page 4-1, Historical accuracy of Boston Public Garden instead of Gardens.

- PARKING LOT, 2) Figure 4-1, Frances Kemp commented that changes and dates should be included at the bottom of the table, ie. for the Sears parking lot and the Elevated T at Forest Hill.

- 2) Section 4 - Consistency issue - Portions of the list are alphabetized and others are not.

- 2) 4.2.1, Charlesgate - Issue with the statement that there is no significant flooding at Charlesgate on Ipswich side. There was significant flooding.

- PARKING LOT, 2) 4.1.2, Back Bay, Disagreement with statement that MDC maintains the parkway.

- 1) 4.2.2 – George made recommendation that CAC make a general comment about the public health hazard, i.e. effluent contamination related to flooding. Tests done in the

past indicated that high levels of fecal chloroform were present causing a health hazard for the general public. Need to stress that this goes beyond mere property damage.

- 1) 4-35, bicycle counts should be taken at the Esplanade adjacent to the Bowker Overpass and at the path in the Riverway adjacent to Back Bay Yard to determine whether a bike connection should be made between the Esplanade and the Emerald Necklace.

- 1) 4-36, relating to the methodology of pedestrian counts, a CAC member questioned having traffic counts from July because pedestrian and vehicular traffic thins out in the summer.

Section 5 – Charlesgate

- Question raised: Where will construction truck cueing occur? John Burckardt responded that the construction contractor will be responsible for finding staging sites for their trucks and that potential sites will have to be submitted to the engineers for approval in advance.

- 1) Page 5-10, MDC will have a public meeting to discuss how the staging areas will be temporarily rehabilitated in the interim, prior to complete rehabilitation. George Haggerty commented that the Secretary should ask the Proponents and the MDC to make the temporarily interim rehabilitation part of the final rehabilitation, because rehabilitating the area twice is unlikely. Thus, the public process should look at the rehabilitation of the entire Charlesgate area, not just those areas disturbed by the dredging and staging areas. The CAC agrees that there should be a public process for the design of the park, however additional discussion in needed regarding the issues of funding and whether public/private partnerships should be considered.

- 1) Page 5-73, CAC should make a strong statement about the enforcement of street sweeping.

- 1) Page 6-12, statement made that treatment will maintain passive recreation nature of park at Charlesgate. Instead, public process should determine what happens in this area and whether there are some ways to make this area more active.

IV Discuss Assignment for Next Meeting

- Editorial comments and grammatical errors should be e-mailed to John B. who will compile a list of these comments.

- Next Meeting – Thursday, January 31, 2002 – Riverway and Back Bay Fens, Chapters 4, 5 & 6.

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
Dudley Bonsal	Charles River Watershed Assoc.
Ed Burke	ROW
Isabella Callanan	Friends of the Muddy River
Edward Cutler	Brookline Resident
Frances Gershwin	
George Hagerty	Fenway Studios, Inc.
Christine Gimbal	Boston GreenSpace Alliance
Frances Kemp	FCA, Friends of the Muddy River
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond
Marion Sabal	Fenway Garden Society
Fredericka Veikley	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
Annie Blair	Town of Brookline
Loraine Della Porta	MODR
Jeannie Adams	MODR
Angie Parker	BPRD
Kara Wilbur	Fort Point Associates
John Burckardt	Project Manager
Claire Flury	

Attachment 2 – Questions

The following questions were raised by the CAC during the 1/22 meeting:

- Page 2-22 – The Corps has suggested an alternative. Has the Corps accepted the Consultant's alternative? John replied that this is something the CAC should be attentive to.

- Under Section 2 – Marion Sabal of the CAC asked when/how jurisdictional issues will be addressed?

- Question directed to Bruce Conklin, CDM: Page 2-4, Why wasn't modeling done for the case where the Stony Brook flows are increased (due to improvements upstream) but No Action is taken on the Muddy River Restoration Project ? This conduit could cause potential problems down the road and George Haggerty questioned whether it should be modeled to provide some data, which could provide leverage to help secure future funding for dredging. CAC agrees that John Burckardt should address this issue with Bruce Conklin and report back to the CAC.

- Under Section 3 – Is there any room for further discussion relating to the role of the CAC in this DEIR?

- Under Section 4 – (4-1) Question directed to Dr. Beverage regarding what parks are in the Emerald Necklace?

MEMORANDUM

DATE: January 31, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation
Fran Beatty, Sr. Landscape Architect for Historic Parks

RE: Meeting Notice, Other Information

Monday, February 4, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: CAC Review of Draft Environmental Impact Report (DEIR) in Preparation of a Comment Letter to the Secretary of Environmental Affairs
- Sections 4, 5, 6 (Back Bay Fens, Riverway, Olmsted Park)

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

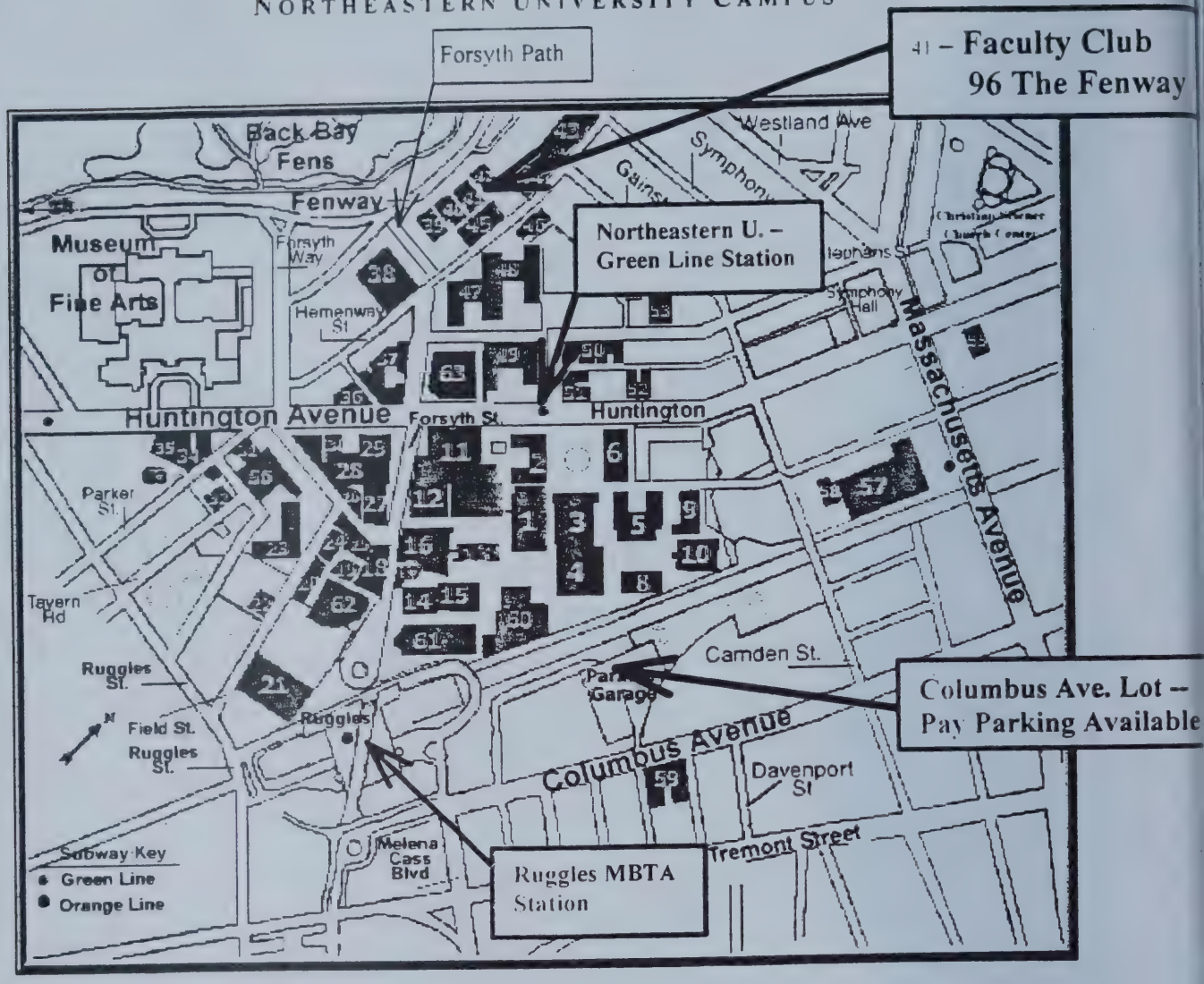
If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Notes:

1. CAC Members: Please read the Back Bay Fens, Riverway and Olmsted Park (Leverett, Willow & Ward Ponds) portions of Sections 4, 5 and 6

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):
The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):
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Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

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Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Monday, February 4, 2002
6:00p.m. - 8:30p.m

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:15

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. Dissemination & Review of Summary Notes – January 22, 2002 6:15 – 6:30

III. Review of DEIR 6:30 – 8:15

- Back Bay Fens Portion of Chapters 4, 5, & 6
- Riverway Portion of Chapters 4, 5, & 6
- Olmsted Park Portion of Chapters 4, 5, & 6

IV. Discuss Assignment for Next Meeting 8:15 – 8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – February 4, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Jeannie M. Adams, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P.E., Project Manager

II Dissemination & Review of Summary Notes – January 22, 2002

- John Burckardt discusses responses to question raised during CAC meeting held on January 22nd. John distributed two handouts, Questions from CAC to Consultants and an email with responses from Bruce Conklin.

III Review of DEIR

Process Reminder:

Level 1 – Comments to be included in the final letter to the Secretary.

Level 2 – Editorial Comments from CAC to Project Proponents

Level 3 – Corrections (Typos, grammar, usage, etc.)

Back Bay Fens Portion of Chapters 4, 5 & 6

Chapter 4

- 3) Page 4-22, Brookline collects hazardous waste only once a year.
- 2) Page 4-10, should there be more said about *Phragmites*?
- 3) Page 4-57, fourth paragraph – The year should read 1899
- 1) Page 4-57, fifth paragraph, need some explanation as to why the change from a salt water body to a fresh water body.

- 3) Page 4-57, rose garden should be named James Kelleher Rose Garden
- 2.5) Page 4-63, second paragraph from bottom, path is deteriorated.
- 2) Page 4-63, last paragraph, add 55 bus.
- 3) Page 4-17, 4.1.6, need an *'s* on it's shoreline.
- 3) Page 4-17, 4.1.6, need space after BPRD.
- 2) Page 4-76, tributary to Chestnut Street Drain, should be Village Brook
- 2) Page 4-77 & 4-92, Tremont Street should be changed to Huntington Ave.
- 3) Page 4-38, 4.3.1.2, "was dredged by hydraulically", take out word *by*.
- 3) Page 4-91, should not be bridal, should be bridle.
- 2) Table 4-1, Historic Resources, Mass College of Pharmacy should be listed.
- 3) Page 4-98, last paragraph, Leverett Pond is now adjacent to Pond Avenue and not Riverdale Parkway.
- 1) Page 4-94, No mention of Carlton Street Footbridge. Renovating the Footbridge would enhance access from Longwood.
- 3) Page 4-57, Third paragraph, should say the Fens was dredged to remove, not removed.
- 2) Page 4-67, If this is by design, Kelly thought the tone of the passage should be changed to reflect that to readers.
- 1) General Comment by Ed that he liked what he read in this section. He felt it was accurate and well represented.
- 2) Page 4-80, not all the species of birds or other wildlife that have been cited in the area are listed. John B. responded that the list was not meant to be exhaustive.

Chapter 5

- 2) Page 5-2, installation of new park benches and trash cans, should include lighting. Table 5-1 on next page should also include trash cans for the sake of continuity.
- 1) Page 5-23, CAC supports removal of the Jug Handle since daylighting will occur. CAC feels strongly that there should be a timely decision made by the City of Boston and Brookline on how to deal with the Jug Handle before any construction begins.
- 1) Page 5-29, fourth paragraph, CAC supports a Transportation Management Plan, with oversight from the BTD, for the Fenway Area during construction activity.

- 1) PARKING LOT – MAINTENANCE. Page 5-10, 2nd paragraph, Arlene suggests that CAC recommends a one year (rather than a 2 year) guarantee and maintenance period, and use the additional funds for training and maintenance.

- 1) Page 5-17, Arlene suggested that statement should be included in letter concerning the bike paths and the need to provide north-south and east-west connections that are currently missing. If it was not contemplated as part of this project, maybe it could be.

- 3) Page 5-37, third paragraph, first sentence, should say "is to minimize", not is minimize.

Chapter 6

- 2) Page 6-29, second paragraph, change sentence to say: "Since the Muddy River is no longer a tidal estuary, it is now necessary to select freshwater wetlands plants that will grow…"

Chapter 4

- 2) Page 4-98, there is no Riverdale Parkway. Should be replaced with Pond Ave.

- 2) Page 4-100, under dredging history section, 1980, statement that the dredging "reportedly" never occurred. This statement is ambiguous.

- 1) CAC would like a permanent record of BMP activity and dredging.

- Section 6 (momentary return to prior section) historic resources, features added to the park system should be long-lasting and historically accurate. Will items such as the shed be replaced with something more historically appropriate?

CAC agreed to move on to Leverett Pond

Chapter 4

3) Page 4-114, first full paragraph, second sentence, should say outlet from Leverett Pond instead of Willow Pond.

- PARKING LOT, 1) Page 4-118, Arlene reiterates that Daisy Field should be relocated away from the shores of Leverett Pond and replaced with passive recreation, due to erosion and the restoration to the primary period, if there is suitable relocation of that activity.

- PARKING LOT, 2) Page 4-119, second to last paragraph, text should focus on problems, not jurisdictions.

- 3) Page 4-120, 4.5.3.3, there are also benches for sitting, not beaches.

- 2) Page 4-120, statement that there are no notable pedestrian issues. However, there are still factors such as erosion and pedestrian access.

- 2) Page 122, traffic demands on Pond Ave are relatively low compared to Jamaica Way. Should specify whether there are restrictions on Pond Avenue. Need to be consistent regardless of jurisdictions.

Chapter 5

- 1) Page 5-56, last paragraph, Master Plan stated that height of light poles at Daisy Field were going to be lowered and lights should be manually operated.

- PARKING LOT 1) Islands are considered wildlife habitat and will be disturbed as little as possible. CAC re-registered their concern that the shorelines of the islands should be stabilized.

- 1) Page 6-69, second to last bullet, change to say, stabilization of the eroding banks of all 3 islands.

- 1) Page 6-77, fourth line down, seeding will be conducted by hydromulching. Mulching should be subject to site inspection and should apply to the entire system. Suggestion made that follow-up component be built in to insure grass is actually growing.

- Page 6-78, There will a multi-faceted program for geese control – See Section 8.

- 2) Page 6-81, 6.4.2.3, should say grebes are occasionally seen there.

- 1&3) Page 6-83, 6.4.3.1, no mention of Headwall at the south end of Leverett Pond in the document, which is in need of repair. Should be included in historic resources section.

- 1) Page 6-87, 6.4.3.3, Hugh suggested that when light-poles are replaced they should also be lowered so that they will be less intrusive.

- 1) Page 6-87, 6.4.3.4, through should be changed to though. Should make a recommendation that access across Willow Road should be improved in terms of pedestrian access and erosion control.

III Discuss Assignment for Next Meeting

Next meeting Wed, February 13. Sections to be reviewed:

- ❑ Willow and Wards Ponds portions of Sections 4, 5 & 6
- ❑ Sections 7 & 9
- ❑ Parking lot issues

Attachment 1

Emerald Necklace Citizens Advisory Committee
February 4, 2002

Meeting Attendance – CAC Members

Name	Affiliation
Kelly Brilliant	Fenway Alliance
Ed Burke	ROW
Suzanne Comtois	Fenway CDC
Edward Cutler	Brookline Resident
Isabella Callanan	Friends of the Muddy River
George Hagerty	Fenway Studios, Inc.
Frances J. Kemp	Fenway Civic Association, Friends of the Muddy River, Fenway Resident
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond
Fredericka Veikley	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
Tom Brady	Town of Brookline
Annie Blair	Town of Brookline
Angie Parker	BPRD
Mark Swartz	National Park Service, F.L. Olmsted NHS
Simone Auster	ENC
John Burckardt	BPRD
Claire Flury	
Kara Wilbur	Fort Point Associates
Jeannie Adams	MODR
Loraine M. Della Porta	MODR

Attachment 2: Questions for Consultants

- Page 5-16, fourth paragraph, last sentence, may need further explanation of the out-of-state lined landfill.
- Page 6-26, should rodent control be mentioned in Charlesgate Area, or on a project-wide basis?
- What is the timeline for CAC review? (John Burckardt answered this in subsequent e-mail message to CAC)
- Page 4-119, Do roads fall under MDC domain? Should we revisit this under Maintenance?
- Page 5-54, second bullet from bottom, shoreline and grading will be restored to primary period of significance. It is not clear what this involves, although CAC supports dredging under Cove Bridge.
- Page 6-73, last sentence, last paragraph, question as to why dredging isn't deeper in order to remove arsenic and PAHs. Need further explanation in text.

Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Monday, February 13, 2002
6:00p.m. - 8:30p.m

Agenda

I. **Welcome, Opening Remarks & Comments Received** 6:00 - 6:10

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. **Review of Summary Notes – February 4, 2002** 6:10 – 6:15

III. **Powerpoint Presentation – Hugh Mattison** 6:15 – 6:30

IV. **Review of DEIR** 6:30 – 8:15

- Willow and Wards Ponds portions of Sections 4, 5 & 6
- Sections 7 & 9

V. **Discuss Assignment for Next Meeting & Meeting Schedule** 8:15 – 8:30

- How much time needed to review Section 8
- March meeting schedule/availability
- Deadlines/Discussion w/ A. Pugsley

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – February 13, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie M. Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

II Review of Summary Notes – February 4, 2002

III PowerPoint Presentation – Hugh Mattison

Hugh gave a PowerPoint presentation showing trees falling into the pond due to shoreline erosion. He stated that there needs to be a balance between saving a natural habitat and BMP of not having the island fall into the water. Proponents need to look critically at the Boston shoreline. Back Bay Fens has similar problem. When trees fall into the water kids are going out to the island and disturbing it. Fallen trees are also becoming oil soaked and habitat is being destroyed. Shorelines should be stabilized as part of this project.

IV Review of DEIR

1) Comments to be included in final letter to the Secretary

2) Editorial comments from CAC to project proponents.

3) Corrections/Errors

Willow and Wards Ponds portion of Section 4, 5 & 6

Section 4

- 2) Page 4-115, the depth of Leverett Pond is inconsistent.
- 2) Page 4-123, third sentence in first paragraph is repeated in third paragraph. This sentence does not make sense.

- 3) Page 4-134, east should be west, west should be east, and stone path should be paved.
- 3) Page 4-142, Section 4.6.3.1, second to last paragraph, discussed Leverett Pond and does not belong in this section.
- 2) Page 4-142, Questioning what funds are for. Suggests ending the sentence by saying, "funds are to complete the project."
- 1) Page 4-143, Section 4.6.3.4, second paragraph, states that lack of sidewalks is not an issue. However, this is a safety issue.
- 2) Page 4-144, last paragraph, there are no formal or safety crossings into the park from Pond Avenue. This is a safety issue.
- 3) Page 4-157, first sentence, delete Emerald Necklace.
- 2) Page 4-158, Quote by Olmsted on this page is also repeated on 4-138.

Section 5

- 2) Table 5-5, Repairing and replacing desire lines in between Willow Pond and Leverett Pond. Unclear which section of the park this area falls under. BMP issue. CAC states that they feel there is a "disconnect" here. Someone needs to be responsible.
- 2) There needs to be a consistent program park-wide to eliminate desire lines until there is an appropriate crossing established.
- 2) Page 5-76, section 5.7.5.1, last paragraph, first paragraph, should include Pond Avenue not just MDC. We need to stop looking at jurisdiction and look instead system-wide.
- 2) Page 5-78, There is a missing link between the ponds, which needs to have special attention called to it. Now there is a problem with erosion at Daisy Field and this should be listed in the BMP section.
- 1) Page 5-78, section 5.7.7.1, roadway drainage should be mentioned. Drainage as a whole is a problem. Again, it should not be looked at from jurisdiction to jurisdiction. (For example, while the DEIR often refers to low curb settings and drainage from the MDC roadways, there are problems with drainage and low curb settings on Pond Ave., a Town of Brookline street.) CAC needs to send a strong message to the Secretary that something has to be done with drainage in the entire park system as a whole.

Section 6

- 2) Page 6-69, second to last bullet from bottom, should be all islands.
- 2) Page 6-89, bulleted activities do not mention improvement of water quality by removal of petroleum contamination.
- 2) Page 6-74, first full paragraph, shoreline plants will not deter geese in winter.

- 2) Page 6-90, Fuel oil has been introduced to the pond via the Chestnut Street Drain. Use of passive verb indicated that no one takes responsibility for this action.

- 2) Page 6-92, if Kelly Field staging is used, special mitigation measures may be necessary. There may be a negative impact on the stickleback.

Section 7

- 2) Page 7-1, second bullet, eliminate one of the improvement.

- 2) Page 7-25, under 7.3.10, last sentence, insert culvert under Brookline Avenue.

- 1) Is it important for CAC to make a statement supporting National Heritage Program recommendation to avoid the variance process. Is there any chance that the variance might happen? Recommendation that CAC not bring up the issue.

- 1) Page 7-25, want to make sure that night work does not occur past 11:00 p.m.

Section 9

- 2) Page 9-1, Section 9.1.1, question relating to use of term "so called," which has a negative connotation. This could be taken out. Tom Brady stated that it isn't meant to be negative – it's just how it is referred to within the industry.

- 2) Page 9-15, does statement relating to preservation of historic structures and maintenance of bridges from the effects of vegetation (paragraph 2) apply to Muddy River or just the Back Bay Fens. Need to clarify which bridges will be repaired and why.

- 2) Page 9-21, second to last paragraph, no reference to a bridge that will be rebuilt at Ward's Pond.

- PARKING LOT – In regards to the annual update that's filed with MEPA, will the distribution be beyond the CAC.

V Discuss Assignment for Next Meeting & Meeting Schedule

How much time needed to review Section 8?

- Next meeting scheduled for Thursday, February 21, 2002.

- CAC will need two meetings to cover Section 8. Letter to the Secretary will be drafted in a sub-committee, and will take two meetings to finalize.

- Chapter 10 is still being finalized. Dollar figure will be shared with the CAC as soon as the Army Corps determines one. John will determine meeting dates for future CAC meetings. CAC should email John with any dates that don't work.

- Loraine requests that CAC take a look at the PARKING LOT list so that this can be discussed at next weeks meeting.

March meeting schedule/availability

- Boston Public Meeting is on the 13th at the Egan Center. Brookline Public Meeting is on the 6th.

Deadlines/Discussion w/ A. Pugsley

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
Kelly Brilliant	Fenway Alliance
Ed Burke	ROW
Isabella Callanan	Friends of the Muddy River
Frances Gershwin	
Christine Gimbel	Boston GreenSpace Alliance
Frances Kemp	FCA, Friends of the Muddy River
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond
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Meeting Attendance – Non-CAC Members

Name	Affiliation
Loraine Della Porta	MODR
Jeannie Adams	MODR
Angie Parker	BPRD
Kara Wilbur	Fort Point Associates
John Burckardt	BPRD
Claire Flury	
Tom Brady	Town of Brookline

QUESTIONS FROM CAC

1) Page 5-52/7, text needs to be added as a bullet on Page 5-57 to say "rebuilding headwall at south end of Babbling Brook." *[This is the section of the brook between Leverett Pond and Willow Pond. The headwall is the one just downstream of Willow Pond Road.]*

2) Are objectives listed in Tables 5-5 and 5-6 accurate?

3) Page 5-61, Will the Willow Pond crossing be replaced?

4) Page 5-80, Some CAC members were questioning the breakdown of percentages and what they represent. The previous text is not explained well. Which items are "even split" items and what is the rational for an "even split?"

5) Page 6-106, What is the rationalization of rehabilitating Leverett Pond first (before Wards and Willow)? How was the sequence of dredging determined? If the staging area is at Daisy Field next to Leverett, would it imply that Leverett can't be finished until the other two ponds are done and then the staging area is removed?

MEMORANDUM

DATE: February 14, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice, Other Information

Thursday, February 21, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: CAC Review of Draft Environmental Impact Report (DEIR) in Preparation of a Comment Letter to the Secretary of Environmental Affairs
- Sections 8 & Appendix J: Management & Maintenance

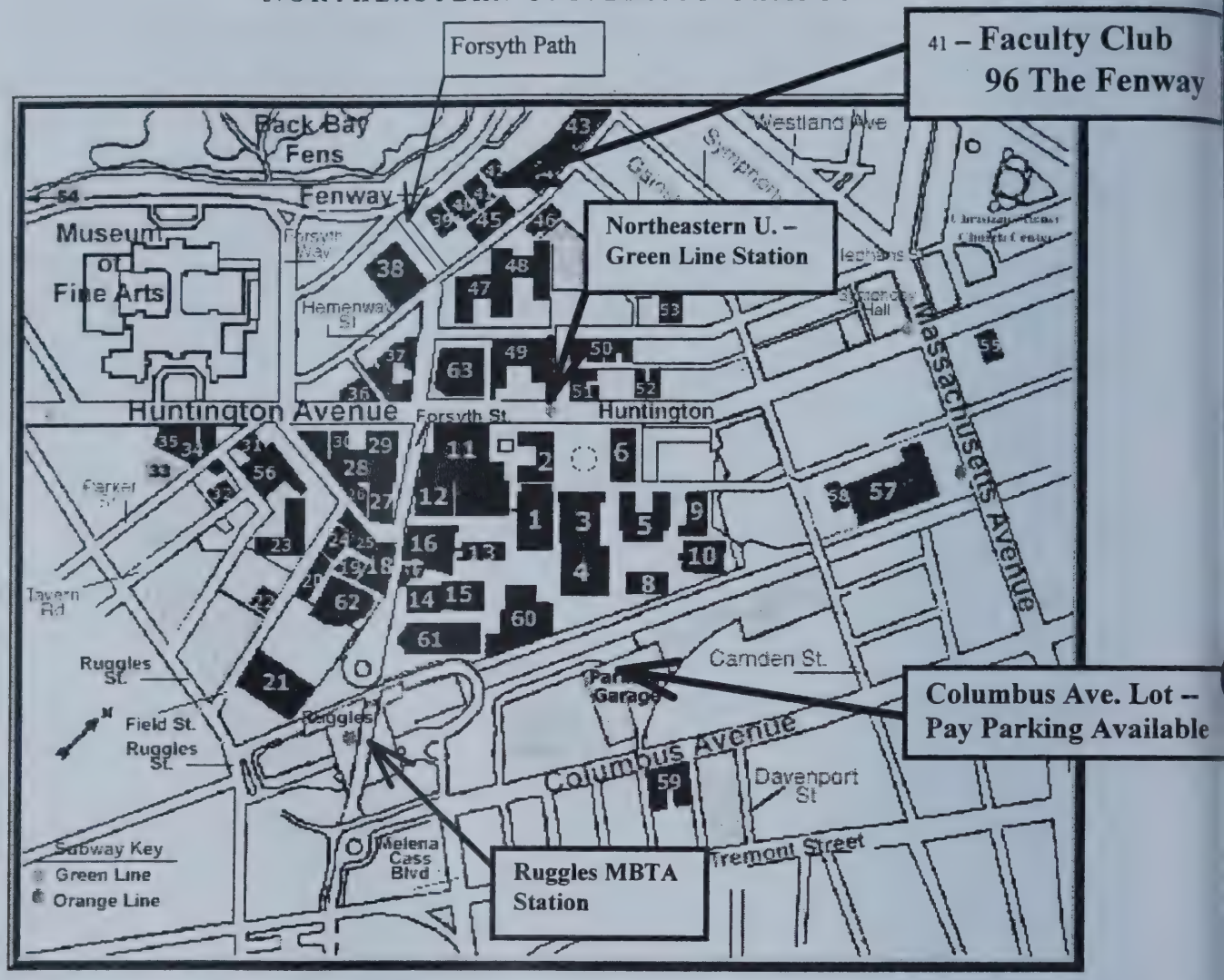
5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Notes:
1. CAC Members: Please Section 8 and Appendix J.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



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Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Thursday, February 21, 2002
6:00p.m. - 8:30p.m

Agenda

I.	**Welcome, Opening Remarks & Comments Received** *Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator* *Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator* *John Burckardt, P. E, Project Manager*	6:00 - 6:10
II.	**Review of Summary Notes – 2/13/02**	6:10 – 6:15
III.	**Powerpoint Presentation – Hugh Mattison**	6:15 – 6:30
IV.	**Review of DEIR** • Section 8 – Management & Maintenance Plan	6:30 – 8:15
V.	**Discuss Assignment for Next Meeting & Meeting Schedule**	8:15 – 8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – February 21, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

- George Hagerty will not be able to make the upcoming CAC meetings, but will continue to provide comments through MODR.
- The answers to the questions posed by CAC to consultants were distributed to CAC.
- Relating to Question 5 to consultants, Arlene recommended that Leverett be last section to be dredged.
- Relating to Question 3 to consultants, paths need to be addressed in response.

II Review of Summary Notes – February 13, 2002

- No Comments

III Powerpoint Presentation – Hugh Mattison

- 1) Hugh makes recommendation that CAC should support the establishment of a GIS to help pull together available data and permit the various jurisdictions to know what information is available and use such technology as a management tool and avoid duplication. There also needs to be a commitment to managing the database.

IV Review of DEIR

1) Letter to the Secretary

2) Editorial comments

3) Errors

Section 8

- Page 8-39, suggest adding petroleum products to list of Sample Parameters. John responded that TPH-EPH includes all petroleum products.

- 3) Page 8-20, "Lot" should be removed and numbers for Back Bay Fens lined up in correct row. Also, columns should be wider so that the entire number can fit in the row.

- Page 8-4, last sentence, is there a recommendation? Discussion on how best maintenance practices will be funded. How can funding BMPs be guaranteed. Once capital improvements are completed, should propose that moneys from agencies and grants be withheld if there isn't compliance with maintenance and management agreements.

- 1) If capital projects are not maintained then next phase of the project should not move forward.

- 1) Page 8-8, how do you set priorities for communities, how are commitments to park management institutionalized, when money is included in the operational budget.

- 1) Page 8-12, In the future once this project is completed, the Emerald Necklace Conservancy will be charged with securing new funding for new projects and maintaining these projects. However, it is unrealistic to expect the ENC to provide funding in the short term.

- 1) Page 8-8, third paragraph, no mention of the half dozen bridges that Brookline is responsible for. Hugh recommends that the letter to the Secretary reference Appendix H, which lists bridges and who has responsibility for each bridge.

- PARKING LOT, 2) Page 8-8, CAC propose that Kelly Rink site be turned back over to Boston, although the site would have to be cleaned prior to the City taking control of the site. Letter to Secretary should recommend that MDC clean up the site in a timely manner prior to the transfer.

- 1) Page 8-14, annual update is a good way to ensure accountability. Budget should be an item included as part of the annual update. It should be determined whether the annual update will occur on the calendar year or the fiscal year. The report should be retrospective and prospective.

- 1) Page 8-11, Annual update meeting will occur when? Discussion on when annual update meeting should be scheduled, which was not included on Table 8-2. When there are meetings relating to management/progress reports, CAC should be invited.

- 1) The section does not provide an answer for how management and maintenance will be ensured and this is a frustration.

- 1) Section makes recommendations on how maintenance should occur, but does not commit to these recommendations by stating that they "will" follow the recommendations by Tim. Problem is the lack of commitment, which is partially due to the inability of the Proponents to secure funding in advance.

- 1) CAC should make recommendations on the characteristics of the maintenance and management that need to be implemented in order ensure positive environmental impacts, including looking at the park as a whole entity or system and up to date information, make sure that CAC is participating in future public review, make sure that the Secretary holds the Proponents accountable to an annual maintenance system.

- 1) Page 8-15, the MOA with respect to project maintenance exists without a firm commitment to BMPs by the Proponents. CAC should recommend that the Secretary get a commitment from the Proponents to fund maintenance as proposed in Tim Marshall's Appendix.

- PARKING LOT - CAC considers requesting a resolution from the Brookline Town Meeting and Boston City Council to recommend funding at the level of Tim Marshall's report.

- PARKING LOT, CAC should adopt Tim Marshall's standard with respect to maintenance, staffing and other recommendations. CAC agrees to review Tim's report prior to the next meeting.

- QUESTION FOR JOHN - Page 8-21, not clear which standard is being referred to for the purposes of developing a benchmark.

- 2) Page 8-27, the language around one park system should be stronger.

- 3) Page 8-22, paragraph repeated, "Erosion should be identified."

- MODR – language for secretary..

- 1) Proponents should identify recommendations that would not increase budgets and must be done immediately.

- 1) Tone of the EIR does not make it clear whether there is real commitment behind proposals. Unclear whether the language is coming from Proponents or consultants.

- MODR, Question whether there are joint trainings....

- 1) George commented that all other sections use strong language ("will"). However, Section 8 does not use such strong language due to the lack of secured funding. Should prioritize recommendations that do not require additional funding.

Attachment 1
Meeting Attendance – CAC Members

Name	Affiliation
Dudley Bonsal	Charles River Watershed Association
Ed Burke	ROW
Suzanne Comtois	Fenway Community Development Corp.
Ed Cutler	Brookline Resident
Frances Gershwin	
Christine Gimbel	Boston GreensSpace Alliance
Frances Kemp	FCA, Friends of the Muddy River
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond
George Proakis	Boston Resident
Fredericka Veikley	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
Loraine Della Porta	MODR
Kirk Fallis	MODR
Angie Parker	BPRD
Kara Wilbur	Fort Point Associates
John Burckardt	PB c/o BPRD
Claire Flury	

MEMORANDUM

DATE: February 25, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice, Other Information

Thursday, February 28, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: CAC Review of Draft Environmental Impact Report (DEIR) in Preparation of a Comment Letter to the Secretary of Environmental Affairs
- Appendix J
- Section 10
- Preparation for Writing the Comment Letter

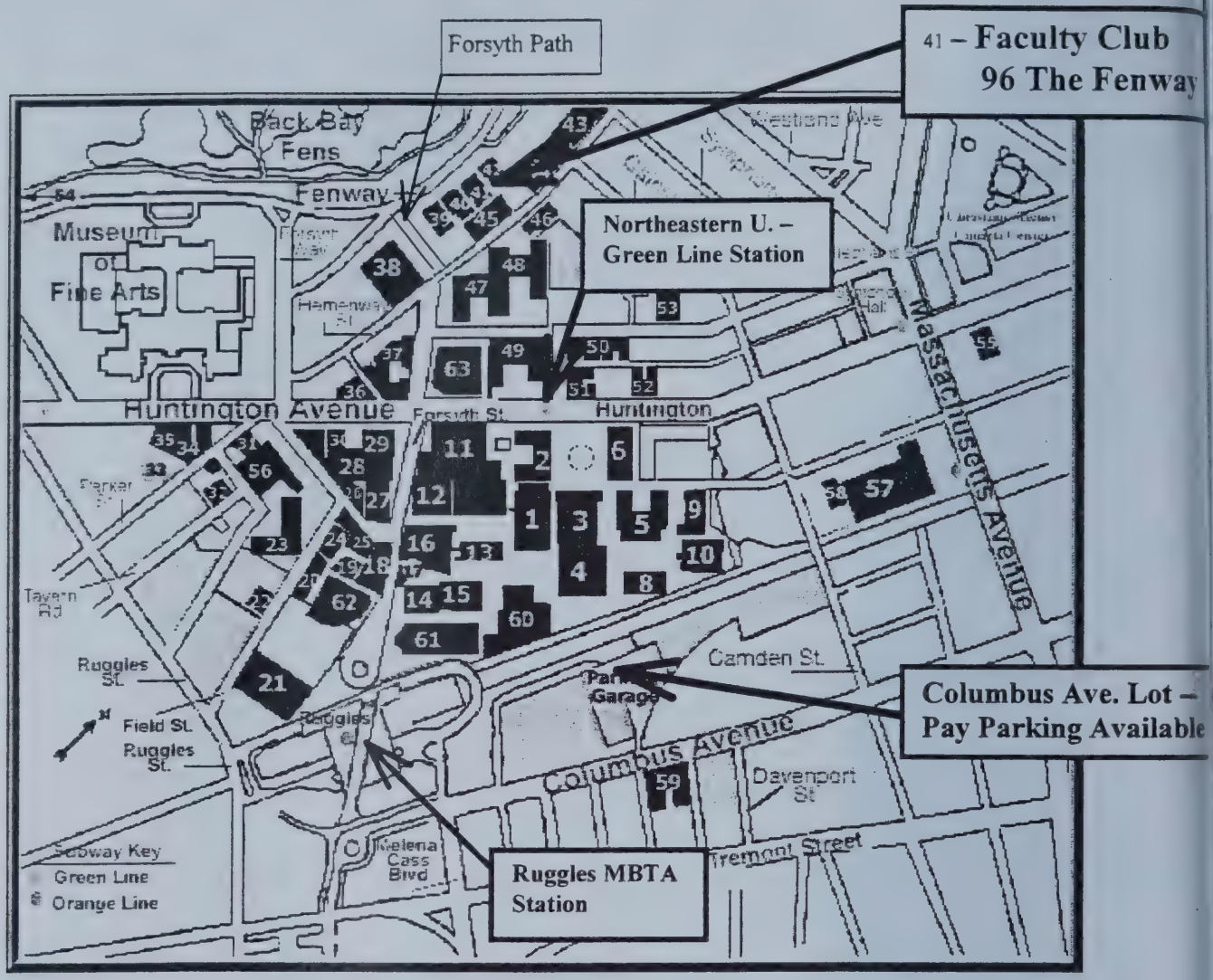
5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Notes:
1. CAC Members: Please read Section 10 and Appendix J.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):
The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Orange Line:
Exit at Ruggles Station. Use the Forsyth Street exit. Walk 2 blocks, cross Huntington Avenue (traffic light) and continue one more block. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Parking Garage:
Cross the tracks using the concourse through Ruggles MBTA station. Next, follow direction (above) from Ruggles Station to the Faculty Club at 96 The Fenway.

Emerald Necklace Citizen's Advisory Committee

Northeastern University Faculty Center

Kerr Hall

Thursday, February 28, 2002
6:00p.m. - 8:30p.m

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:10

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P. E, Project Manager

II. Review of Summary Notes – 2/21/02 6:10 – 6:15

III. Announcements – J. Burckardt 6:15 – 6:30

- Comm. Liff
- Meeting w/Army Corrp

IV. Review of DEIR 6:30 – 8:20

- Appendix J
- Section 10
- Preparation for Writing Comment Letter to Secretary

V. Discuss Assignment for Next Meeting & Meeting Schedule 8:20 – 8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – February 28, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P.E., Project Manager

II Review of Summary Notes – 2/21/02

Loraine handed out 2 packets containing all of the "Level 1" comments that the CAC wanted to include in their letter to the Secretary. In one packet the comments are arranged chronologically by section, in the other packet, the comments are arranged by "theme". This was provided to the CAC to use as a framework when drafting their letter to the Secretary. Loraine thanked Kirk Fallis of MODR for preparing these packets.

III Announcement – J. Burckardt

- Memo from Commission Liff – she will be taking a leave for two months.
- Meeting w/ Army Corp on Tuesday – still waiting for Decision Document – Corps is performing its internal reviews. Once this document is approved internally, the Corps will issue an Environmental Assessment, which will be open for public review. The Decision Document will then be finalized and used to budget funding for the project. Charlesgate is on a separate track, which is already funded. The remainder of the project with the Corps is currently anticipated to commence in late 2003.
- Margaret VanDeusen of Charles River Watershed Association – MDC Master Plan involves linking Emerald Necklace to the Esplanade at Charlesgate. MDC is committed to funding this project and seeing it through. It is anticipated that the linkage (a pedestrian bridge) will be coordinated with the Muddy River Restoration Project and the subsequent implementation of the Emerald Necklace Master Plan. The details of the connection are no known at this time.

IV Review of DEIR

Appendix J

- Page 16 – estimate of addition 21,000 hours = 13.8 FTE. This information is a major commitment. CAC should confirm that when proponent states in Chapter 8 that they are accepting Tim's recommendations that they are committing to these numbers.

- 1) CAC should encourage recommendations that could be adopted now to be put into affect as soon as possible rather than waiting for the start of the project.

- Vehicle tracks in the park are more evident this year than in the past.

- 1) Page 33, picture of Daisy Field, if staging area is going to be in place for more than a year, than moving the disturbed ballfield from Daisy Field to a different location, such as Millennium Park, should be considered. Picture is dramatic evidence of the need to move this field further away from the river, as it shows erosion of the clay infield mix.

- Page 15, additional plantings, many more shrubs are planned for the Riverway than the Back Bay Fens. Difficult to conceive how this many plants will fit into such a relatively small area. John Burckardt responded that other areas of the parks will not be replanted to the same extent. Appendix I contains information on plantings.

- 1) Page 36 & 37, Emerald Necklace Conservancy has a desire to fulfill role as private sector partner. CAC should support this partnership.

- 1) Page 37-43, CAC should specifically recommend that the Proponents adopt Tim's 7-point maintenance plan. The proposal letter should specifically highlight each of the 7-points in the maintenance plan.

- 1) Page 35 – Relating to Muddy River Park Coordinator, Proponent's need to determine who will act as the coordinator between Boston, Brookline and the MDC with respect to the maintenance plan.

- 1) Should make recommendations about using cisterns and storm water retention as a mechanism for holding and reusing storm water in order to minimize runoff. This is consistent will EOEA's guidelines. Should be recommended as a BMP.

- 1) Page 43, strategies for closing the gap for 21,575 hour NPT. CAC should emphasize that closing the gap on these hours should happen as soon as possible and not wait for the completion of capital projects.

- 1) CAC should recommend that state effort be made now relating to geese. Secretary should recommend that Proponent undertake a pilot project to deal

with geese problem. Hugh volunteers to draft a letter to the Proponents encouraging them to take immediate steps to deal with this issue. Letter will be circulated among CAC members for their input.

Section 10

- 3) Page 10-1, EIR states that over 7.9 million dollars is available for funding to date. Budget table shows $6.9 million. $6.9 million is the correct figure.
- 3) Should standardize capitalization of word Federal.
- 2) Page 10-2, reference to Proponents supplementing Federal and State funding seems to be a contradiction. John clarified that Proponents provide about 35% of funding.
- 2) 10.1.3, Arlene questions changes to MOU. In terms of watershed, Brookline and Boston are 50-50. In terms of watersheet, Brookline is responsible for 13% and Boston is responsible for 87%.
- 2) Page 10-8, third bullet, verify that HUD funding to date is considered non-Federal. John Burckardt responded that because states have discretionary control of the use of community block grants, they could be considered non-Federal funding.
- 3) Page 10-11, Paul Cellucci's last name is spelled wrong.
- 1) Page 10-3 and 10-21, MDC is not a project Proponent. Therefore MDC is not beholden to any funding of this project and cannot be fiscally obligated. Question as to validity of this statement. Response from John Burckardt: since the MDC is not one of the proponents, the DEIR can only make recommendations regarding maintenance and improvements on the MDC-controlled portions of the project area. The CAC could concur with the DEIR recommendations that funding be found for the recommended level of consistent maintenance across the 3 jurisdictions.
  CAC recommends that an appropriate level of funding be provided for park maintenance and BMPs in the MDC-controlled portions of the park and parkways.
- 3) Page 10-6, last sentence in second to last paragraph, the working team… subcommittee that will meet monthly.
- 1) Page 10-11, second paragraph under 10.4.3, example of strong language that CAC should consider using in letter to Secretary.
- Page 10-9, the required date under EPA Storm water Phase II, order
- 3) Page 10-10, reference to Section 10.15, should say 10.14.
- 1) Page 10-10, under Brookline section, it should be made more clear what is being spent, where it appears on the budgets, why its being spent and whether

its included as part of the project. Line items don't appear to be consistent between this document and Brookline's capital improvement document.

- 2) Page 10-16, Proponent's will re-apply for "Save America's Treasures" in March 2002. Has/will this been/be done? John Burckardt responded that this money could not be used for construction this year, given the current timeline. So, it would not make sense to apply in 2002.

- 1) CAC should recommend that Proponents commit to securing the 17% required capital funding, as well as maintenance. This type of firm commitment seems to be missing in the DEIR.

- Question whether CAC should be concerned about lack of commitment to funding. John Burckardt suggested waiting for the Corps to issue its Decision Document and for the state and proponents to meet to discuss the details of funding. Once the decision document from the Corps is finalized, other funding commitments should follow. So far commitment contained in MOU has been sufficient to fund the project to date.

- Question relating to Environmental Bonds – especially when state funds are limited in a given fiscal year, bonds are an alternative method of funding capital projects.

- 1) Future Security Resolution, Hugh Mattison recommends that Secretary Durand encourage the Proponents to pass a resolution that would solidify future funding contributions and commitments from the Proponent's for the maintenance of the project. If CAC wishes to move ahead on this, would have to submit a warrant article before March 14 in the Town of Brookline. This resolution would be non-binding, however would be persuasive and would be an official document that could be referenced. This is an ideal time to push this resolution forward and gaining wider support for the project.

- Wider public outreach is required for the project to increase support and understanding.

- Two separate issues – One is securing commitment of the Proponents and the second is increasing public support and awareness.

- Question from Arlene Mattison - Indicated in DEIR that there would be a $900,000 commitment per year for over-dredging. Some question that this method may not be environmentally sensitive and expensive. This issue should be explored. John Burckardt responded that there does not seem to be a practical alternative. Other methods of treatment control considered were not practical for this project.

- 1) Page 8-15, CAC should specifically request a resolution from governing bodies, committing Proponents to long-term maintenance according to Chapter 8 and Appendix J, as accepted by the Proponents in the DEIR. Could mention

timing of the resolutions and pros and cons of the timing, leaving the decision up to Secretary.

- Hugh volunteers to write some text relating to the resolution that could be included in the letter to the Secretary.

V Discuss Assignment for Next Meeting & Meeting Schedule

Drafting Committee:

The CAC was asked to nominate a drafting committee to write the final letter to the Secretary. The nominations were as follows:

- George Hagerty
- Fran Gershwin
- Arlene Mattison
- Hugh Mattison (Head Drafter)

- Loraine will ask other CAC members not present if they wish to be involved.
- CAC agrees to cancel meeting next weeks meeting, but may hold the following meeting on Tuesday, March 12, 2002.
- Hugh Mattison will draft the letter to the Secretary and forward to all interested CAC members.

Questions

- QUESTION FOR CONSULTANTS - Page 44 of Appendix J, closing the gap, could dollar amounts be added to each of the recommendations?
- QUESTION FOR Brookline - Table 10-2, Funding Sources, in Brookline's proposed budget, there is no line item setting aside money [$500,000] as indicated in Table 10-2.
- QUESTION– Page 8-10, ask Boston Water and Sewer for a breakdown of the majority of the $50 million in projects.

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Meeting Attendance – CAC Members

Name	Affiliation
Dudley Bonsal	Charles River Watershed Assoc.
Kelly Brilliant	Fenway Alliance
Isabella Callanan	Friends of the Muddy River
Frances Gershwin	
Suzanne Comtois	Fenway CDC
Frances Kemp	FCA, Friends of the Muddy River
Arlene Mattison	Emerald Necklace Conservancy
Hugh Mattison	Friends of Leverett Pond

Meeting Attendance – Non-CAC Members

Name	Affiliation
Loraine Della Porta	MODR
Kirk Fallis	MODR
Angie Parker	BPRD
Kara Wilbur	Fort Point Associates
John Burckardt	PB c/o BPRD
Margaret Van Deusen	Charles River Watershed Assoc.

Emerald Necklace Citizens Advisory Committee (CAC)
Comments for Letter to Secretary

Review of DEIR

Executive Summary

- George Haggerty commented that he was disappointed with the style and quality of writing in the Executive Summary. He feels it does not adequately nor clearly summarize the project. Photographs and other visuals that were included are helpful, but writing falls short.

- The Executive Summary provides project background and history but does not explain the scope of the project.

- CAC agrees to include a comment about the inadequacies of the Executive Summary and plan to re-draft this part of the document themselves.

- Concern expressed that Executive Summary shows a lack of attention to detail, which is vital to the success of the project.

- CAC agrees that Presley's work should be highlighted and the re-write subcommittee will include it in the letter to the Secretary.

- P. 23, wildlife resources, no mention of relocation of species. Meetings have not been held with the Audubon Society or the Aquarium. These contacts need to be made and volunteers recruited.

- P. 25, top of the page, signage. At each of the construction staging areas there should be explicit signage, to be used as an educational tool, explaining the phase of project. A section of other types of public education should be included somewhere in the document.

- P. 35, under funding, no mention about Proponent's commitment to increase maintenance costs. Should include phrase that states, "the project will not move forward until adequate funding is secured for maintenance".

Section 1

- No mention of historic landscape in list of objectives for Phase 1. There is no consistency in the terminology used for this objective. Want to emphasize commitment to all five objectives.

- PARKING LOT – SECTION 10, P. 1.17, concern expressed that the wording of text does not adequately re-enforce that the project will not be segmented. Should express to Secretary concern that funding be secured in order to ensure that the project will not be segmented.

- P. 1-32, disagreement with statement that the park is in poor condition because of "inattention." Boston and Brookline need to take ownership of park and accept responsibility.

- In letter to Secretary, CAC could mention concern that the Proponents make a commitment to stewardship of the park system.

- Concern that BMPs be included in phase 1.

- In letter state that we are looking for a commitment from the Proponent relating to treatment objectives for historic resources - request of clarity for commitment.

- 1&2) P. 1-7, need advocacy language describing importance of Mater Plan in relation to the project. The document does not make it clear that the MRRP is based on the Master Plan, which is highly supported publicly. CAC could make general comment that they support the framework of the Master Plan.

Section 2

- First page, first paragraph, the language for objective 4, (maintaining cultural and historic resources vs. historic preservation) needs to be more consistent, with a stronger commitment to this objective.

- Need more consistent terminology. Lack of consistency does not reflect a lack of commitment by the CAC.

- PARKING LOT Concern with the Army Corps – need to reiterate that CAC does not support the Army Corps building a straight channel under any circumstance and that the CAC supports the consultant's recommendations.

- Has the Army Corps agreed to use the alternatives proposed in the DEIR? John B. responded that the Corps has to produce their own environmental document, which will be open for public comment. At present, all indications we get from the Corps indicate that the project they will propose will be substantially the same as the proponent's project.

- Page 2-14, CAC supports arched culverts, which respects the cultural and resource objective, as opposed to the box culverts.

- PARKING LOT, Page 2-82, George Haggerty recommended inserting language relating to ownership and inadequate maintenance and stewardship. CAC should discuss this issue at a later time.

- Page 2-105, geese prevention - add fencing, because vegetation goes away in winter. The issue of how to deal with this problem needs to be investigated. Above and beyond vegetation, another means that doesn't limit access to the

water should be considered. Arlene Mattison commented that there should be a state initiative to find a regional solution to the geese problem.

- Page 2-106, Arlene Mattison commented that CAC should state support of Brookline's water quality BMP plan to comply with EPA Phase 2 requirements. CAC agreed to make an opening general statement of support for ongoing BMPs in both Boston and Brookline.

- Arlene Mattison commented that CAC should reinforce that this a park system and that jurisdictions should not override the entire system. Reinforce concept as "park as a whole."

- Page 2-107, first paragraph, Brookline streets are adjacent to the park system and have some of the same problems as the MDC.

- PARKING LOT – Proponents should come up with an implementation plan relating to specific BMPs that arise relating to animal waste and leaf collection.

- Arlene Mattison questioned whether Daisy Field could be used for something other than a baseball field that would be less damaging to the river (i.e. a soccer field).

Section 3

- PARKING LOT, BC Question, – Is there any room for further discussion relating to the role of the CAC in this DEIR? Page 8-15, Accountability. CAC shouldn't depend on Proponents to determine the future role of the CAC and should discuss what their role will be. For discussion at subsequent meetings - what should be the future role of the CAC? See Attachment 2.

Section 4 - Charlesgate

- 4.2.2 – George made recommendation that CAC make a general comment about the public health hazard, i.e. effluent contamination related to flooding. Tests done in the past indicated that high levels of fecal chloroform were present causing a health hazard for the general public. Need to stress that this goes beyond mere property damage.

- 4-35, bicycle counts should be taken at the Esplanade adjacent to the Bowker Overpass and at the path in the Riverway adjacent to Back Bay Yard to determine whether a bike connection should be made between the Esplanade and the Emerald Necklace.

- 4-36, relating to the methodology of pedestrian counts, a CAC member questioned having traffic counts from July because pedestrian and vehicular traffic thins out in the summer.

Section 5 – Charlesgate

- Page 5-10, MDC will have a public meeting to discuss how the staging areas will be temporarily rehabilitated in the interim, prior to complete rehabilitation. George Haggerty commented that the Secretary should ask the Proponents and the MDC to make the temporarily interim rehabilitation part of the final rehabilitation, because rehabilitating the area twice is unlikely. Thus, the public process should look at the rehabilitation of the entire Charlesgate area, not just those areas disturbed by the dredging and staging areas. The CAC agrees that there should be a public process for the design of the park, however additional discussion in needed regarding the issues of funding and whether public/private partnerships should be considered.

- Page 5-73, CAC should make a strong statement about the enforcement of street sweeping.

- Page 6-12, statement made that treatment will maintain passive recreation nature of park at Charlesgate. Instead, public process should determine what happens in this area and whether there are some ways to make this area more active.

Chapter 4

- Page 4-57, fifth paragraph, need some explanation as to why the change from a salt water body to a fresh water body.

- Page 4-94, No mention of Carlton Street Footbridge. Renovating the Footbridge would enhance access from Longwood.

- General Comment by Ed that he liked what he read in this section. He felt it was accurate and well represented.

Chapter 5

- Page 5-23, CAC supports removal of the Jug Handle since daylighting will occur. CAC feels strongly that there should be a timely decision made by the City of Boston and Brookline on how to deal with the Jug Handle before any construction begins.

- Page 5-29, fourth paragraph, CAC supports a Transportation Management Plan, with oversight from the BTD, for the Fenway Area during construction activity.

- PARKING LOT – MAINTENANCE, Page 5-10, 2nd paragraph, Arlene suggests that CAC recommends a one year (rather than a 2 year) guarantee and maintenance period, and use the additional funds for training and maintenance.

- Page 5-17, Arlene suggested that statement should be included in letter concerning the bike paths and the need to provide north-south and east-west connections that are currently missing. If it was not contemplated as part of this project, maybe it could be.

Chapter 4

- CAC would like a permanent record of BMP activity and dredging.

- PARKING LOT, Page 4-118, Arlene reiterates that Daisy Field should be relocated away from the shores of Leverett Pond and replaced with passive recreation, due to erosion and the restoration to the primary period, if there is suitable relocation of that activity.

Chapter 5

- Page 5-56, last paragraph, Master Plan stated that height of light poles at Daisy Field were going to be lowered and lights should be manually operated.

- PARKING LOT Islands are considered wildlife habitat and will be disturbed as little as possible. CAC re-registered their concern that the shorelines of the islands should be stabilized.

- Page 6-69, second to last bullet, change to say, stabilization of the eroding banks of all 3 islands.

- Page 6-77, fourth line down, seeding will be conducted by hydromulching. Mulching should be subject to site inspection and should apply to the entire system. Suggestion made that follow-up component be built in to insure grass is actually growing.

- 1&3) Page 6-83, 6.4.3.1, no mention of Headwall at the south end of Leverett Pond in the document, which is in need of repair. Should be included in historic resources section.

- Page 6-87, 6.4.3.3, Hugh suggested that when light-poles are replaced they should also be lowered so that they will be less intrusive.

1) Page 6-87, 6.4.3.4, through should be changed to though. Should make a recommendation that access across Willow Road should be improved in terms of pedestrian access and erosion control.

Willow and Wards Ponds portion of Section 4, 5 & 6

Section 4

- Page 4-143, Section 4.6.3.4, second paragraph, states that lack of sidewalks is not an issue. However, this is a safety issue.

Section 5

- Page 5-78, section 5.7.7.1, roadway drainage should be mentioned. Drainage as a whole is a problem. Again, it should not be looked at from jurisdiction to jurisdiction. (For example, while the DEIR often refers to low curb settings and drainage from the MDC roadways, there are problems with drainage and low curb settings on Pond Ave., a Town of Brookline street.) CAC needs to send a

strong message to the Secretary that something has to be done with drainage in the entire park system as a whole.

Section 7

- Is it important for CAC to make a statement supporting National Heritage Program recommendation to avoid the variance process. Is there any chance that the variance might happen? Recommendation that CAC not bring up the issue.

- Page 7-25, want to make sure that night work does not occur past 11:00 p.m.

Section 8

- If capital projects are not maintained then next phase of the project should not move forward.

- Page 8-8, how do you set priorities for communities, how are commitments to park management institutionalized, when money is included in the operational budget.

- Page 8-12, In the future once this project is completed, the Emerald Necklace Conservancy will be charged with securing new funding for new projects and maintaining these projects. However, it is unrealistic to expect the ENC to provide funding in the short term.

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and up to date information, make sure that CAC is participating in future public review, make sure that the Secretary holds the Proponents accountable to an annual maintenance system.

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- Tone of the EIR does not make it clear whether there is real commitment behind proposals. Unclear whether the language is coming from Proponents or consultants.

- George commented that all other sections use strong language ("will"). However, Section 8 does not use such strong language due to the lack of secured funding. Should prioritize recommendations that do not require additional funding.

- Page 8-32, the database should not be limited to catch basins and include other data in a more inclusive GIS database.

- Page 8-37, planting of natural barriers, should recommend to Secretary that geese present a regional problem. Hugh made suggestions on how population could be controlled, such as earlier oiling of eggs, putting up educational signs to not feed water foul.

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CAC Sources of Disagreement DEIR

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BOSTON

Thomas M. Menino, Mayor

EMERALD NECKLACE
ENVIRONMENTAL IMPROVEMENTS MASTER PLAN
AND
PHASE I MUDDY RIVER FLOOD CONTROL, WATER QUALITY,
HABITAT ENHANCEMENT AND HISTORIC PRESERVATION

MEMORANDUM

DATE: March 6, 2002

TO: CAC Members Not Attending the February 28th Meeting

FROM: John Burckardt

RE: Handouts – CAC Level 1 Comments

The enclosed documents were complied by the Massachusetts Office of Dispute Resolution (MODR) staff from the various CAC "level 1" comments from the meetings in January and February 2002. One is by section, the other is by theme.

c: L. M. DellaPorta, MODR
T. Brady, Brookline
A. Parker, BPRD

\\perksmail\bospark\Muddy\Correspondence\20020306 memo CAC-handouts of 2-28-02 CAC.doc

Boston Parks and Recreation Department • Justine M. Liff, Commissioner
1010 Massachusetts Ave., Boston, MA 02118 / Tel.: (617) 635-4505 / Fax: 635-3173

Emerald Necklace Citizens Advisory Committee (CAC)
Comments for Letter to Secretary

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- Page 5-73, CAC should make a strong statement about the enforcement of street sweeping.

- Page 8-32, street sweeping has been established as a BMP. A towing program needs to be part of the program to ensure that streets actually get cleaned. Currently cars aren't towed and signage needs to be enforced.

- PARKING LOT – MAINTENANCE, Page 5-10, 2nd paragraph. Arlene suggests that CAC recommends a one-year (rather than a 2 year) guarantee and maintenance period, and use the additional funds for training and maintenance.

Holistic Vision

- SECTION 10, P. 1.17, concern expressed that the wording of text does not adequately re-enforce that the project will not be segmented. Should express to Secretary concern that funding be secured in order to ensure that the project will not be segmented.
- Arlene Mattison commented that CAC should reinforce that this a park system and that jurisdictions should not override the entire system. Reinforce concept as "park as a whole."

- Page 5-78, section 5.7.7.1, roadway drainage should be mentioned. Drainage as a whole is a problem. Again, it should not be looked at from jurisdiction to jurisdiction. (For example, while the DEIR often refers to low curb settings and drainage from the MDC roadways, there are problems with drainage and low curb settings on Pond Ave., a Town of Brookline street.) CAC needs to send a strong message to the Secretary that something has to be done with drainage in the entire park system as a whole.

Stewardship / Future Commitment

- P. 1-32, disagreement with statement that the park is in poor condition because of "inattention." Boston and Brookline need to take ownership of park and accept responsibility.

- In letter to Secretary, CAC could mention concern that the Proponents make a commitment to stewardship of the park system.

- In letter state that we are looking for a commitment from the Proponent relating to treatment objectives for historic resources - request of clarity for commitment.

- PARKING LOT, Page 2-82, George Haggerty recommended inserting language relating to ownership and inadequate maintenance and stewardship. CAC should discuss this issue at a later time.

- Tone of the EIR does not make it clear whether there is real commitment behind proposals. Unclear whether the language is coming from Proponents or consultants.

CAC

- **Future Role / Responsibilities**

- 1&2) P. 1-7, need advocacy language describing importance of Mater Plan in relation to the project. The document does not make it clear that the MRRP is based on the Master Plan, which is highly supported publicly. CAC could make general comment that they support the framework of the Master Plan.

- Section 3– Is there any room for further discussion relating to the role of the CAC in this DEIR? Page 8-15, Accountability. CAC shouldn't depend on Proponents to determine the future role of the CAC and should discuss what their role will be. For discussion at subsequent meetings - what should be the future role of the CAC? See Attachment 2.

- CAC should make recommendations on the characteristics of the maintenance and management that need to be implemented in order ensure positive environmental impacts, including looking at the park as a whole entity or system and up to date information, make sure that CAC is participating in future public review, make sure that the Secretary holds the Proponents accountable to an annual maintenance system.

- Is it important for CAC to make a statement supporting National Heritage Program recommendation to avoid the variance process. Is there any chance that the variance might happen? Recommendation that CAC not bring up the issue.

Oversight / Missing Information / Additional Data

- P. 23, wildlife resources, no mention of relocation of species. Meetings have not been held with the Audubon Society or the Aquarium. These contacts need to be made and volunteers recruited.

- Page 2-105, geese prevention - add fencing, because vegetation goes away in winter. The issue of how to deal with this problem needs to be investigated. Above and beyond vegetation, another means that doesn't limit access to the water should be considered. Arlene Mattison commented that there should be a state initiative to find a regional solution to the geese problem.

- George made recommendation that CAC make a general comment about the public health hazard, i.e. effluent contamination related to flooding. Tests done in the past indicated that high levels of fecal chloroform were present causing a health hazard for the general public. Need to stress that this goes beyond mere property damage.

- 4-35, bicycle counts should be taken at the Esplanade adjacent to the Bowker Overpass and at the path in the Riverway adjacent to Back Bay Yard to determine whether a bike connection should be made between the Esplanade and the Emerald Necklace.

- 4-36, relating to the methodology of pedestrian counts, a CAC member questioned having traffic counts from July because pedestrian and vehicular traffic thins out in the summer.

- Page 8-32, the database should not be limited to catch basins and include other data in a more inclusive GIS database.

- Page 6-12, statement made that treatment will maintain passive recreation nature of park at Charlesgate. Instead, public process should determine what happens in this area and whether there are some ways to make this area more active.

CAC Proposals / Initiatives

❑ Infrastructure

- Page 4-94, No mention of Carlton Street Footbridge. Renovating the Footbridge would enhance access from Longwood.

- Page 8-8, third paragraph, no mention of the half dozen bridges that Brookline is responsible for. Hugh recommends that the letter to the Secretary reference Appendix H, which lists bridges and who has responsibility for each bridge.

- 1&3) Page 6-83, 6.4.3.1, no mention of Headwall at the south end of Leverett Pond in the document, which is in need of repair. Should be included in historic resources section.

- Arlene Mattison questioned whether Daisy Field could be used for something other than a baseball field that would be less damaging to the river (i.e. a soccer field).

- PARKING LOT, Page 4-118, Arlene reiterates that Daisy Field should be relocated away from the shores of Leverett Pond and replaced with passive recreation, due to erosion and the restoration to the primary period, if there is suitable relocation of that activity.

- Page 5-56, last paragraph, Master Plan stated that height of light poles at Daisy Field were going to be lowered and lights should be manually operated.

- Page 5-17, Arlene suggested that statement should be included in letter concerning the bike paths and the need to provide north-south and east-west connections that are currently missing. If it was not contemplated as part of this project, maybe it could be.

- Page 6-87, 6.4.3.3, Hugh suggested that when light-poles are replaced they should also be lowered so that they will be less intrusive.

- Page 6-87, 6.4.3.4, through should be changed to though. Should make a recommendation that access across Willow Road should be improved in terms of pedestrian access and erosion control.

❑ Public Education

- P. 25, top of the page, signage. At each of the construction staging areas there should be explicit signage, to be used as an educational tool, explaining the phase of project. A section of other types of public education should be included somewhere in the document.

❑ Waterway, Floral, and Fauna

- Page 5-10, MDC will have a public meeting to discuss how the staging areas will be temporarily rehabilitated in the interim, prior to complete rehabilitation. George Haggerty commented that the Secretary should ask the Proponents and the MDC to make the temporarily interim rehabilitation part of the final rehabilitation, because rehabilitating the area twice is unlikely. Thus, the public process should look at the

rehabilitation of the entire Charlesgate area, not just those areas disturbed by the dredging and staging areas. The CAC agrees that there should be a public process for the design of the park, however additional discussion in needed regarding the issues of funding and whether public/private partnerships should be considered.

- PARKING LOT Islands are considered wildlife habitat and will be disturbed as little as possible. CAC re-registered their concern that the shorelines of the islands should be stabilized.

- Page 6-69, second to last bullet, change to say, stabilization of the eroding banks of all 3 islands.

- Page 6-77, fourth line down, seeding will be conducted by hydromulching. Mulching should be subject to site inspection and should apply to the entire system. Suggestion made that follow-up component be built in to insure grass is actually growing.

- Page 8-37, planting of natural barriers, should recommend to Secretary that geese present a regional problem. Hugh made suggestions on how population could be controlled, such as earlier oiling of eggs, putting up educational signs to not feed water foul.

CAC DEIR Support

- Page 5-23, CAC supports removal of the Jug Handle since daylighting will occur. CAC feels strongly that there should be a timely decision made by the City of Boston and Brookline on how to deal with the Jug Handle before any construction begins.

- Page 5-29, fourth paragraph, CAC supports a Transportation Management Plan, with oversight from the BTD, for the Fenway Area during construction activity.

- Page 8-14, annual update is a good way to ensure accountability. Budget should be an item included as part of the annual update. It should be determined whether the annual update will occur on the calendar year or the fiscal year. The report should be retrospective and prospective.

- Page 8-11, Annual update meeting will occur when? Discussion on when annual update meeting should be scheduled, which was not included on Table 8-2. When there are meetings relating to management/progress reports, CAC should be invited.

CAC Sources of Disagreement DEIR

- PARKING LOT Concern with the Army Corps – need to reiterate that CAC does not support the Army Corps building a straight channel under any circumstance and that the CAC supports the consultant's recommendations.

- Page 2-14, CAC supports arched culverts, which respects the cultural and resource objective, as opposed to the box culverts.

- Page 4-143, Section 4.6.3.4, second paragraph, states that lack of sidewalks is not an issue. However, this is a safety issue.

- Page 8-39, issue as to whether an inspection program of vegetation on a one, three and five year program, followed by a three-year program is enough. Updates should take place on an annual basis to monitor the status of invasive plants. There should be an evaluation of plants during year two, at which point the guarantee on plants expires.

Other

- Page 7-25, want to make sure that night work does not occur past 11:00 p.m.

- Page 2-107, first paragraph, Brookline streets are adjacent to the park system and have some of the same problems as the MDC.

- Has the Army Corps agreed to use the alternatives proposed in the DEIR? John B. responded that the Corps has to produce their own environmental document, which will be open for public comment. At present, all indications we get from the Corps indicate that the project they will propose will be substantially the same as the proponent's project.

Camp Dresser & McKee Inc.

Muddy River Restoration Project

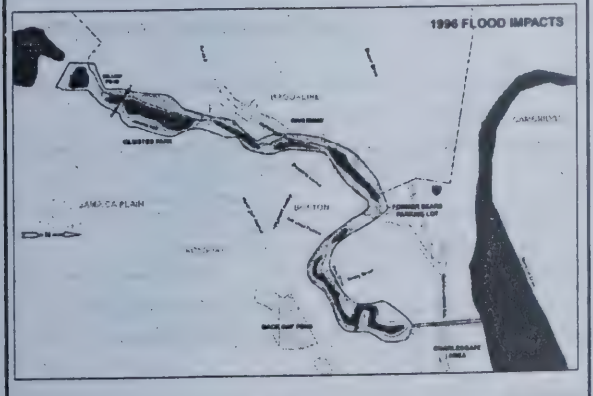
Public Information Meeting

March 6, 2002

Bruce Conklin, PE, CDM
Vice President

Public Information Meeting Presentation

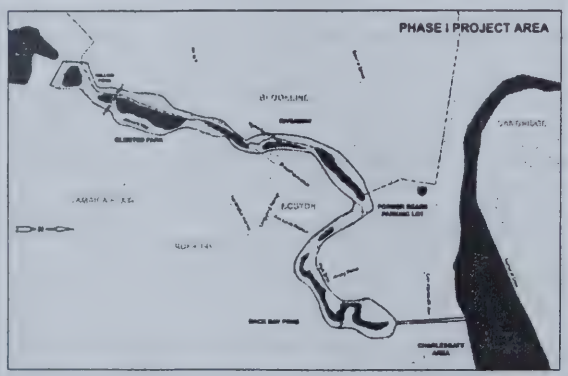
Emerald Necklace Environmental Master Plan and Phase 1 Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Rehabilitation





Project Objectives

- Improve water quality
- Provide flood control
- Restore landscape and historic resources
- Institute Best Management Practices (BMPs) in the Muddy River system
- Enhance aquatic/riparian habitat



Project Alternatives (1 of 3)

- Provide flood control
  - Daylighting
  - Culvert Replacement
  - Dredging
  - Flood Protection
  - Upstream Storage
- Improve water quality
  - Dredging
  - Point Source Control
  - Flow Augmentation

Project Alternatives (2 of 3)

- Improve water quality (con't)
  - Aeration
  - Harvesting of aquatic vegetation
- Enhance aquatic / riparian habitat
  - Same alternatives as water quality plus
  - Best Management Practices
  - Removal of invasive species
  - Planting wetland and riparian vegetation
  - Restore historic islands

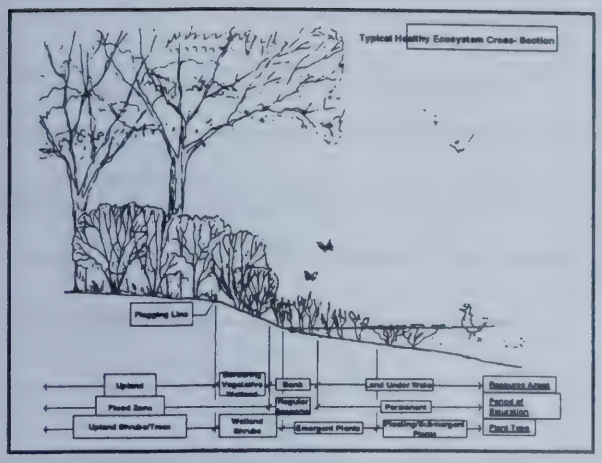
Project Alternatives (3 of 3)

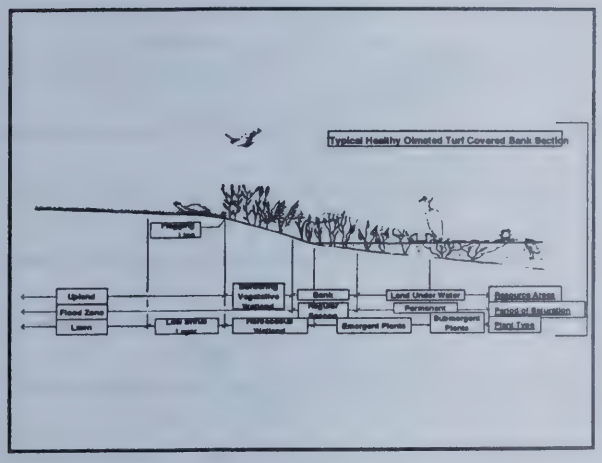
- Restore landscape and historic resources
  - Develop treatment plan to respect Emerald Necklace Master Plan, 1990 ("the continuum")
  - Develop treatment plan to respect primary and secondary periods of significance of the Park
- Institute Best Management Practices (BMPs) for stormwater management











Screening of Flood Control Alternatives

	Provides Flood Control	Improves Water Quality	Enhances Aquatic/Riparian Habitat	Trail Connection/Nature Education	Reduces Traffic
Natural Channel daylight/culvert Enlargement/Charles Gate Dredge Only	□	○		□	
Natural Channel daylight/culvert Enlargement/Partial Dredge	□	○		□	
Natural Channel daylight/culvert Enlargement/Fully Dredge*	△	□	□	□	□
Engineered Channel daylight/culvert Enlargement/Charles Gate Dredge Only	□	○			
Engineered Channel daylight/culvert Enlargement/Partial Dredge	□	○			
Engineered Channel daylight/culvert Enlargement/Fully Dredge	△	□	□		□
Flood Proofing of Property	□				
Upstream Storage					

△ Fully Meets Objective
□ Partially Meets Objective
○ Addresses some elements of Objective
■ Does not Address Objective

*Recommended alternative

Alternative Dredging Methods

- Dredge in the dry
- Drag line dredging
- Environmental clamshell bucket dredging
- Gradall dredging
- Conventional hydraulic dredging
- High solids hydraulic dredging (Toyo-type pump)

Clamshell dredge

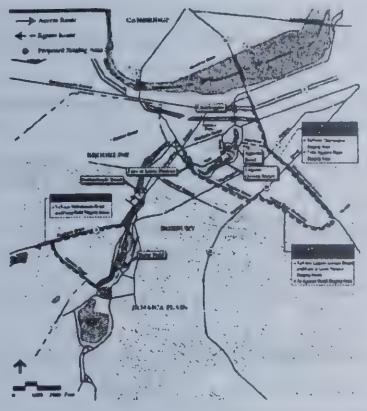


Hydraulic dredge



Staging Areas for Hydraulic Dredging

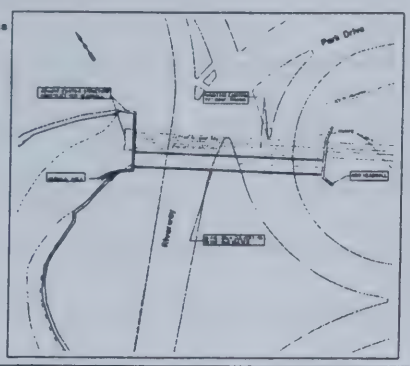
- Charlesgate
- Agassiz Road
- Lagoon (Jersey Street)
- Fens at Louis Pasteur
- Netherlands Road
- Daisy Field



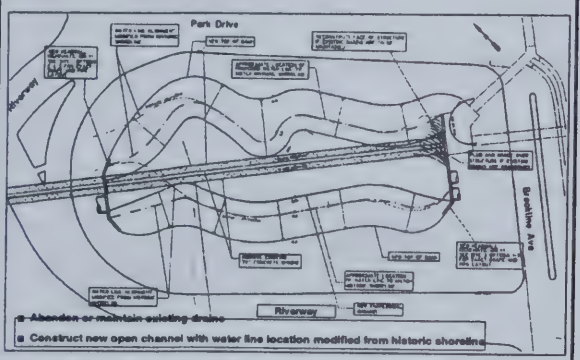


Riverway Culvert

- Maintain existing drains
- Remove structure
- Construct new drain

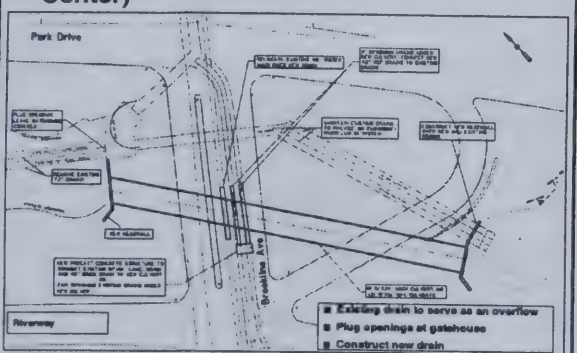


Former Sears Lot



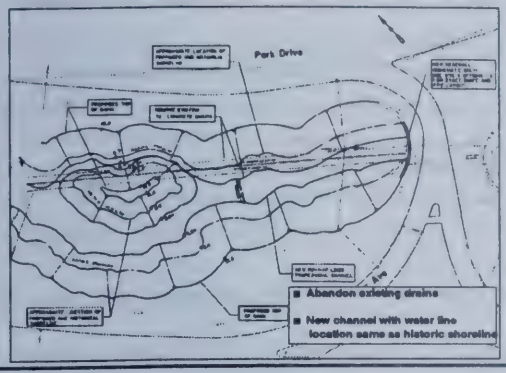
- Abandon or maintain existing drains
- Construct new open channel with water line location modified from historic shoreline

Brookline Avenue at Sears (Landmark Center)



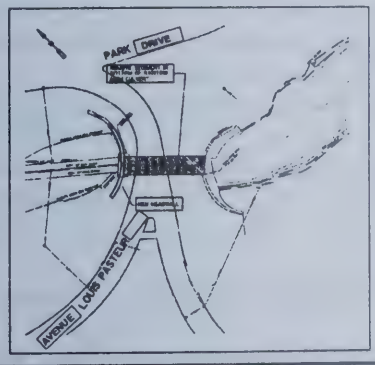
- Existing drain to serve as an overflow
- Plug openings at gatehouse
- Construct new drain

Upstream of Fens Bridge



Fens Bridge

- Maintain existing arch culvert
- Dredge bottom of existing culvert



Charlesgate



Sediment Characterization Summary

- Samples collected of the fill and native material at 128 locations
- Approximately 360 samples have been collected
- Samples were collected at 2-ft depth intervals, generally from 0 to 8 feet
- Sampling identified native strata under river

Landfill Disposal Costs

- In State
  - Unlined $50/ton (10 % of sediments)
  - Lined $60/ton (11 % of sediments)
- Out of State $110/ton (61 % of sediments)
- RCRA $250/ton (18 % of sediments)

Water Quality Summary

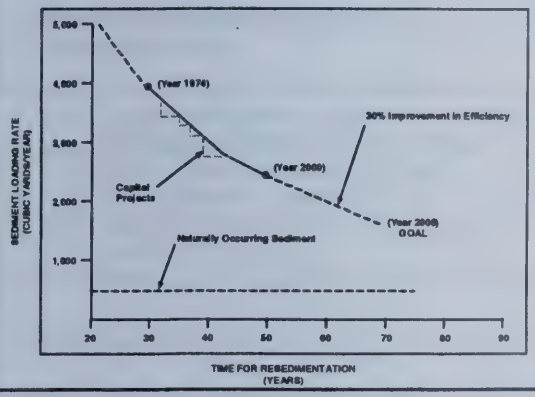
- Dissolved oxygen content has improved in recent years
- Fecal coliform isolated problems but overall much better
- Nitrogen and phosphorus are high in general
- Suspended solids are variable, but overall reduced from 1970's

Objectives of Best Management Practices (BMPs)

- Minimize re-sedimentation rates***
- Improve water quality
- Maintain project improvements
- Contribute to attainment of Fishable/Swimmable goal for Charles River

***Overriding Objective

Sediment Loads Over Time



Best Management Practices - Non Structural

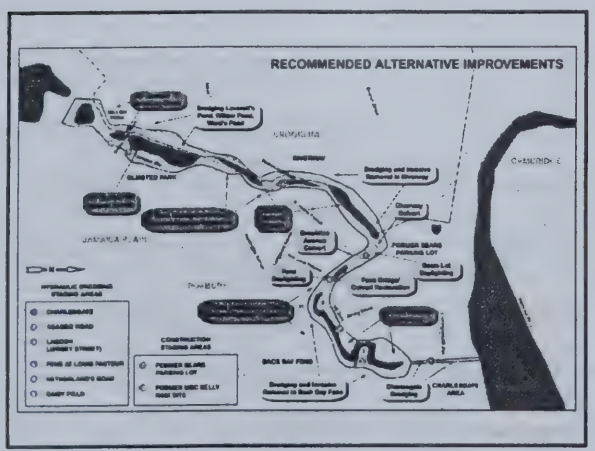
- Upgrade catch basin cleaning / street sweeping program (All)
- Maintain restored banks, pathways and uplands (BPRD, Brookline)
- Correct "desire lines" (BPRD, Brookline)
- Local stormwater regulations (Brookline)
- Develop plan to enforce pooper scooper regulations (All)

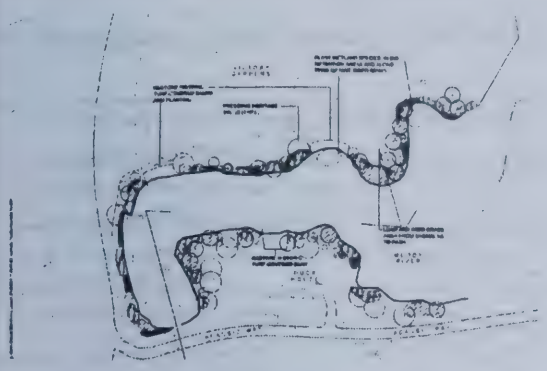
Best Management Practices - Non Structural (con't)

- Develop geese control plan (All)
- Institute water quality monitoring program
- Improve leaf collection programs
- Eliminate or modify mesh trash barrels

Best Management Practices - Structural

- Wetland bioretention swale - Victory Gardens
- Particle Separators
- Stormceptor at Walnut Street
- In-stream sedimentation basins





Back Bay Fens at Victory Garden

Flood Control Benefits from Improvements

- Significantly reduces substantial monetary damages from storm similar to 10/96
- Afford added protection to area with 10 universities and 7 hospitals
- Eliminate invasive species that re-grow to restrict flood channel

Environmental Benefits from Improvements

- Ability to meet dissolve oxygen criteria for Class B waters
- Improved aquatic habitat (quality and quantity)
- Removal of contaminated sediments from environment (some are RCRA)
- Increase bio-diversity of riparian habitat
- Decrease bank erosion contributing to sedimentation and loss of park

Benefits to Historical Resources

- Rehabilitate lost historic landscapes
- Recreate some historic shoreline features
- Reduce future deterioration on existing historic resources

Environmental Impacts of Project

- Temporary disturbance and runoff from construction areas
- Turbidity from dredging and filtrate
- Disturbance of benthic community, fish and other resources
- Wetland impacts
- Temporary pedestrian and traffic impacts
- Construction noise (piles for structures/sheeting)
- Odors

Mitigation Measures

- Hydraulic dredging to reduce turbidity and odor
- Use of silt curtains, filtering of dewatering discharge
- Truck staging areas
- Independent environmental monitor
- Provide temporary pedestrian walkways
- Noise monitoring
- Replanting wetland and riparian vegetation
- Culvert replacement using style of historic structures

Management and Maintenance

- Consideration of joint management restructuring
- Use of MEPA Annual Update Report
- Quality assurance report logs
- Raise maintenance standards
- Increase staff resources through training, hiring and volunteers
- Monitoring and maintenance programs

Estimate Project Cost

Charlesgate	$ 1,915,000
Back Bay Fens	47,033,000
Riverway	9,048,000
Leverett Pond	6,126,000
Willow Pond	2,097,000
Ward's Pond	3,904,000
Engineering	8,900,000
Structural BMPs	11,255,000
Program Management Costs	800,000
Total	$91,078,000

What is next?

Submit Draft EIR to MEPA	Jan 2002
Complete Corps of Engineers Decision Document	March 2002
Permitting for Early Action Item	Spring 2002
Begin Construction Early Action Item	Spring 2002
Begin design for remaining Muddy River Restoration	Summer 2002
Final EIR to MEPA	Fall 2002
Permitting for Muddy River Restoration	Fall 2003
Begin Construction of Muddy River Restoration	Winter 2003/04

Questions and Answers

Recommended Project for EIR (1 of 4)

- Daylight former Sears Parking Lot and upstream of Fens Bridge with natural channel configuration following historic shoreline where possible.
- Fully dredge Muddy River primarily using hydraulic dredging method with a primary group of 6 staging areas.
- Replace culverts under Riverway, Brookline Avenue with arch culverts.

Recommended Project for EIR (con't 2 of 4)

- Remove invasive species along entire length of project area primarily using mechanical means from the water.
- Plant wetland and riparian vegetation along banks where invasives are removed and along banks with no vegetation to stabilize banks and reduce erosion.

Recommended Project for EIR (con't 3 of 4)

- Restore historic islands to increase wildlife habitat and reclaim the Olmsted historic landscape.
- Provide sandy gravel bottom in selected river / pond areas to encourage fish spawning.
- Restore Babbling Brook downstream of Willow Pond by modifying current outlet and refurbishing bed upstream of Willow Pond.
- Rehabilitate bank areas along the project area to restore historic shorelines where possible.

Recommended Project for EIR (con't 4 of 4)

- Rehabilitate the project area in accordance with the 1990 Emerald Necklace Master Plan ("the continuum").
- Institute Best Management Practices (BPMs) for stormwater management.

The Emerald Necklace Conservancy invites you to

Public Informational Meetings on the Muddy River Restoration Project

Draft Environmental Impact Report



Riverway – Boston Park System Muddy River Improvement. View upstream from the Longwood Avenue Bridge in 1920, twenty-eight years after construction. (Thomas Ellison, photographer, Fredrick Law Olmsted National Historic Site)

Wednesday, March 6, 2002
6:00 pm
Brookline Town Hall
Selectmen's Chambers
333 Washington Street

Wednesday, March 13, 2002
6:00 pm
Northeastern University
Room 240 - Egan Center
Forsyth Street, next to Ruggles MBTA Station

*** ***Both meetings will cover the same information*** ***

~ ~ ~ ~ ~ See Maps on Back! ~ ~ ~ ~ ~ ~

To View the Report On-Line:
Go to www.muddyriverproject.org and choose DEIR from the links in the left column on the home page. On the DEIR page, scroll down and click on On-Line Copy.

To View the Report at a Repository:
See list on back

To Order a Copy of the Report:
Call or e-mail:
John Burckardt (617) 635-4505 x6517
jburckardt@ci.boston.ma.us
Specify whether you would like the compact version (Executive Summary with CD or report) or a printed version of Volume 1.

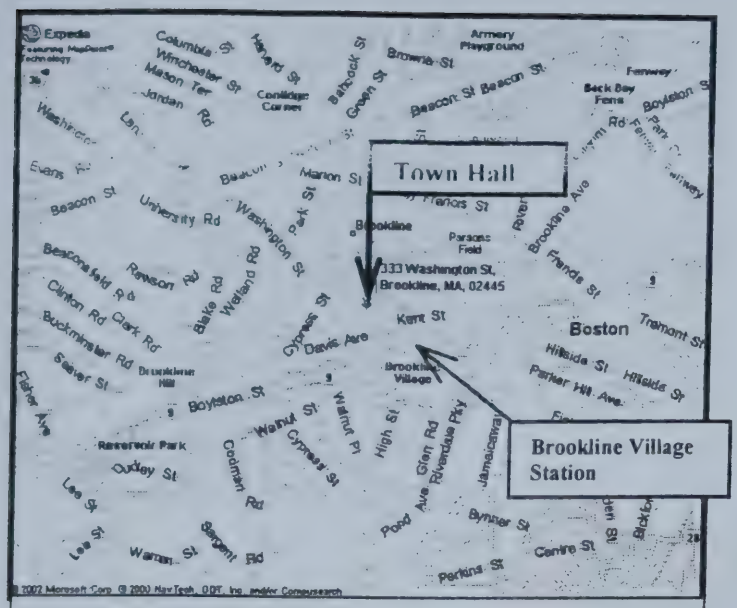
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Muddy River Restoration Project
A joint project of the:

City of Boston
Thomas M. Menino, Mayor
Justine M. Liff, Commissioner of Parks

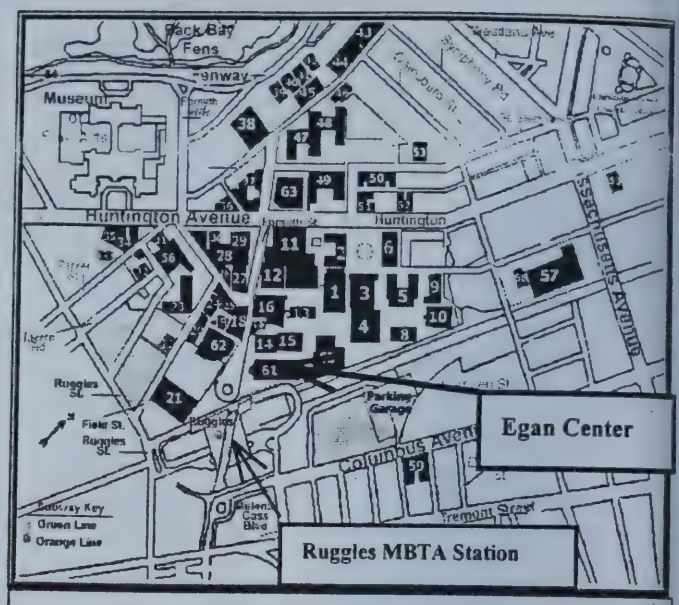
Town of Brookline
Donna Kalikow, Chair, Board of Selectmen
Thomas DeMaio, Commissioner of Public Works

Funding and support from the Massachusetts Executive Office of Environmental Affairs, Massachusetts Department of Environmental Management, Massachusetts Emergency Management Agency, Federal Emergency Management Agency, U. S. Department of Housing and Urban Development, the Boston Water & Sewer Commission and the Town of Brookline.



Brookline Town Hall, 333 Washington Street
March 6, 2002, 6:30 pm

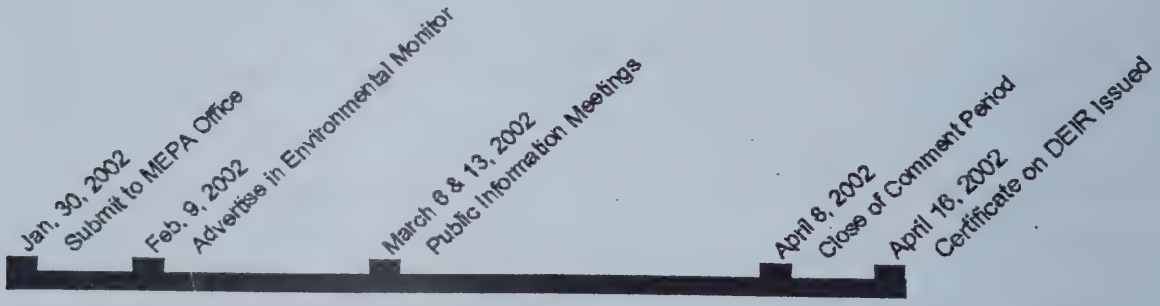
Directions: Green Line D to Brookline Village
Park on street or in lot adjacent to Town Hall



Egan Center at Northeastern University
March 13, 2002, 6pm

Directions: Orange Line or bus to Ruggles
Park at NU Garage on Columbus Ave.

Schedule for DEIR Public Review:



Send written comments on the DEIR to:

MA Secretary of Environmental Affairs
251 Causeway Street
Boston, MA 02114
Ref: EOEA No. 11865

For more information, visit: www.state.ma.us/envir/mepa

Repositories:

The DEIR will be available for review beginning February 8, 2002. Hours will vary at each location. Call ahead for details.

Boston Parks & Recreation Department
1010 Massachusetts Avenue, 3rd Floor
Boston, MA 02118
Contact: John Burckardt (617) 635-4505 x6517
or Angie Parker (617) 635-4505 x6518

Boston Environment Department
Boston City Hall, Room 805
One City Hall Plaza
Boston, MA 02215
Contact: Ellen Lipsey (617) 635-2510

Boston Public Library
Copley Square Branch
700 Boylston Street
Boston, MA 02116
Contact: Government Documents (617) 536-5400

Brookline Department of Public Works
Brookline Town Hall, 4th Floor
333 Washington Street
Brookline, MA 02445
Contact: Tom Brady (617) 730-2088

The Emerald Necklace Conservancy
Two Brookline Place
Brookline, MA 02445
Contact: Simone Auster (617) 232-5374

Frederick Law Olmsted Natl. Historic Site
National Park Service
99 Warren Street
Brookline, MA 02445
Contact: Mark Swartz (617) 566-1689

MASCO
375 Longwood Avenue
Boston, MA 02215
Contact: Jan Henderson (617) 632-2762

Massachusetts Historical Society
1154 Boylston Street
Boston, MA 02215
Contact: Peter Drummey (617) 646-0501
or William Fowler (617) 266-6532

Jamaica Plain Branch Library
12 Sedwick Street
Jamaica Plain, MA 02130
Contact: Alice Roberts (617) 524-205

EMERALD NECKLACE
ENVIRONMENTAL IMPROVEMENTS MASTER PLAN
AND
PHASE I MUDDY RIVER FLOOD CONTROL, WATER QUALITY
HABITAT ENHANCEMENT AND HISTORIC PRESERVATION



Riverway – Boston Park System Muddy River Improvement. View upstream from the Longwood Avenue Bridge in 1920, twenty-eight years after construction (Thomas Ellison, photographer, Fredrick Law Olmsted National Historic Site)

Muddy River Restoration Project

Public Informational Meeting

March 13, 2002

Agenda

1. Welcome & Introductions

Joseph Geller, President, Emerald Necklace Conservancy & Member, Brookline Board of Selectmen;

Margaret Dyson, Director of Historic Parks, Boston Parks & Recreation Department

Thomas Brady, Conservation Administrator & Tree Warden, Town of Brookline

2. Public Review Process

Arthur Pugsley, Environmental Analyst, Executive Office of Environmental Affairs, MEPA Unit

3. Project Overview

Bruce Conklin, PE, Vice President, Camp Dresser & McKee, Inc.

4. Questions & Answers

Lorraine Della Porta, Esq., Facilitator, Mass. Office of Dispute Resolution

Camp Dresser & McKee Inc.

Muddy River Restoration Project

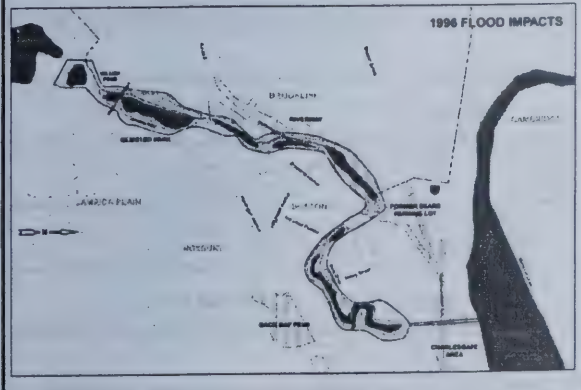
Public Information Meeting

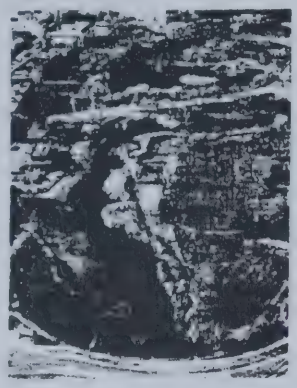
March 13, 2002

Bruce Conklin, PE, CDM
Vice President

Public Information Meeting Presentation

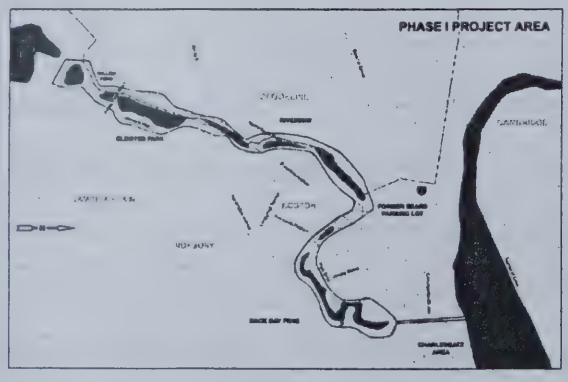
Emerald Necklace Environmental Master Plan and Phase 1 Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Rehabilitation





Project Objectives

- Improve water quality
- Provide flood control
- Restore landscape and historic resources
- Institute Best Management Practices (BMPs) in the Muddy River system
- Enhance aquatic/riparian habitat



Project Alternatives (1 of 3)

- Provide flood control
  - Daylighting
  - Culvert Replacement
  - Dredging
  - Flood Protection
  - Upstream Storage
- Improve water quality
  - Dredging
  - Point Source Control
  - Flow Augmentation

Project Alternatives (2 of 3)

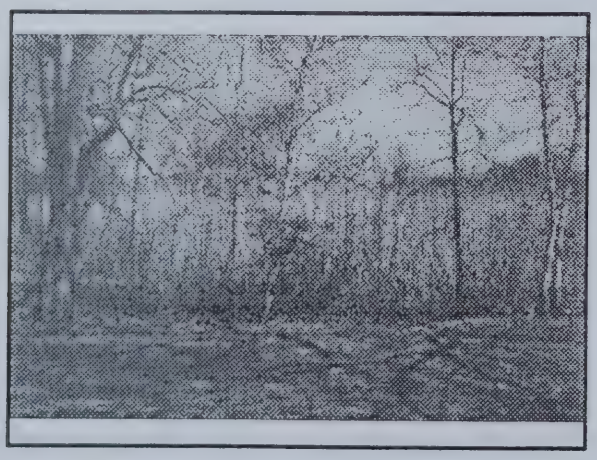
- Improve water quality (con't)
  - Aeration
  - Harvesting of aquatic vegetation
- Enhance aquatic / riparian habitat
  - Same alternatives as water quality plus
  - Best Management Practices
  - Removal of invasive species
  - Planting wetland and riparian vegetation
  - Restore historic islands

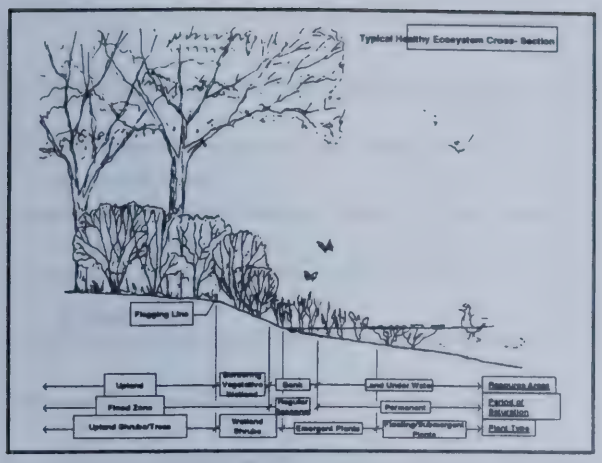
Project Alternatives (3 of 3)

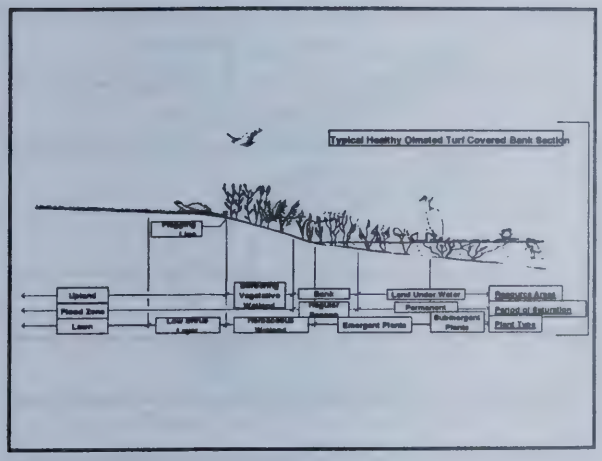
- Restore landscape and historic resources
  - Develop treatment plan to respect Emerald Necklace Master Plan, 1990 ("the continuum")
  - Develop treatment plan to respect primary and secondary periods of significance of the Park
- Institute Best Management Practices (BMPs) for stormwater management











Screening of Flood Control Alternatives

	Provides Flood Control	Improve Water Quality	Enhance Aquatic Habitat	Trail Connection/Access Enhancement	Wildlife Habitat
Natural Channel daylight/culvert Enlargement/Charles Gate Dredge Only	▣	○		▣	
Natural Channel daylight/culvert Enlargement/Partial Dredge	□	○		□	
Natural Channel daylight/culvert Enlargement/Fully Dredge*	△	□	□	□	□
Engineered Channel daylight/culvert Enlargement/Charles Gate Dredge Only	▣	○			
Engineered Channel daylight/culvert Enlargement/Partial Dredge	□	○			
Engineered Channel daylight/culvert Enlargement/Fully Dredge	△	□	□		□
Flood Proofing of Property	▣				
Upstream Storage					

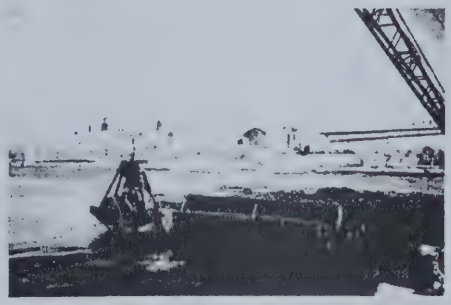
△ Fully Meets Objective
▣ Partially Meets Objective
○ Addresses some elements of Objective
■ Does not Address Objective

*Recommended alternative

Alternative Dredging Methods

- Dredge in the dry
- Drag line dredging
- Environmental clamshell bucket dredging
- Gradall dredging
- Conventional hydraulic dredging
- High solids hydraulic dredging (Toyo-type pump)

Clamshell dredge

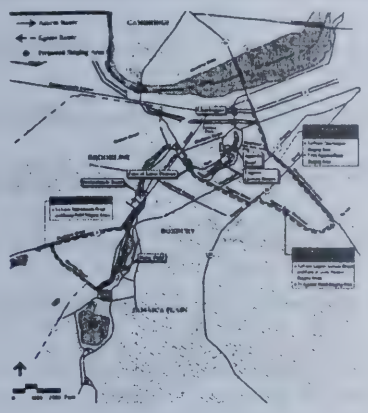


Hydraulic dredge



Staging Areas for Hydraulic Dredging

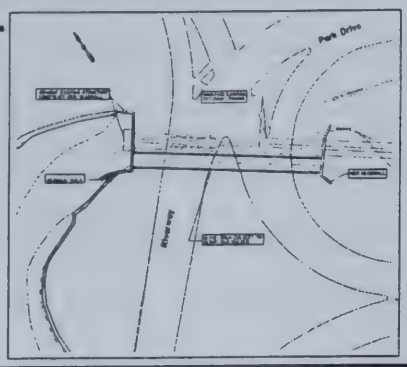
- Charlesgate
- Agassiz Road
- Lagoon (Jersey Street)
- Fens at Louis Pasteur
- Netherlands Road
- Daisy Field



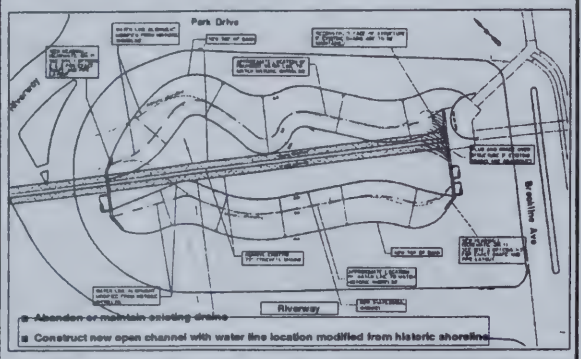


Riverway Culvert

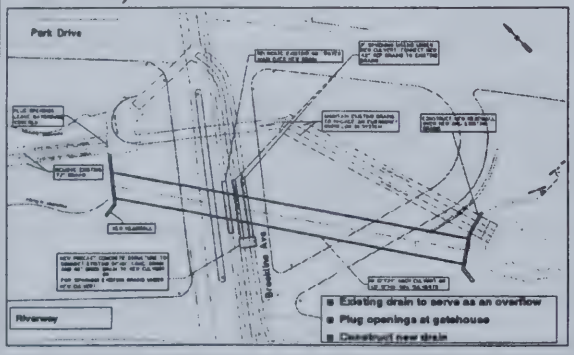
- Maintain existing drains
- Remove structure
- Construct new drain



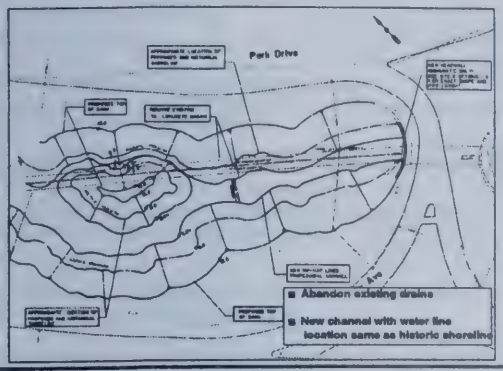
Former Sears Lot



Brookline Avenue at Sears (Landmark Center)

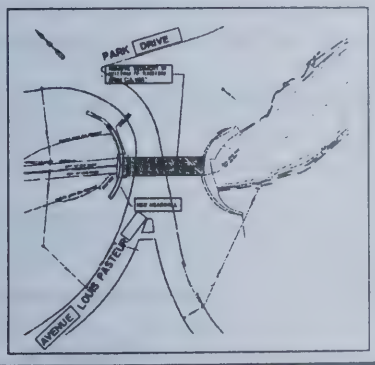


Upstream of Fens Bridge



Fens Bridge

- Maintain existing arch culvert
- Dredge bottom of existing culvert



Charlesgate



Sediment Characterization Summary

- Samples collected of the fill and native material at 128 locations
- Approximately 360 samples have been collected
- Samples were collected at 2-ft depth intervals, generally from 0 to 8 feet
- Sampling identified native strata under river

Landfill Disposal Costs

- In State
  - Unlined $50/ton (10 % of sediments)
  - Lined $60/ton (11 % of sediments)
- Out of State $110/ton (61 % of sediments)
- RCRA $250/ton (18 % of sediments)

Water Quality Summary

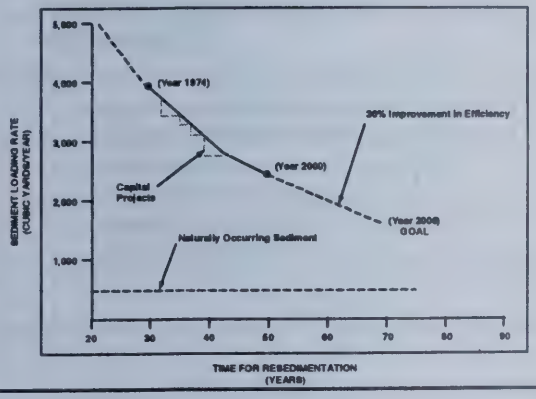
- Dissolved oxygen content has improved in recent years
- Fecal coliform isolated problems but overall much better
- Nitrogen and phosphorus are high in general
- Suspended solids are variable, but overall reduced from 1970's

Objectives of Best Management Practices (BMPs)

- Minimize re-sedimentation rates***
- Improve water quality
- Maintain project improvements
- Contribute to attainment of Fishable/Swimmable goal for Charles River

***Overriding Objective

Sediment Loads Over Time



Best Management Practices - Non Structural

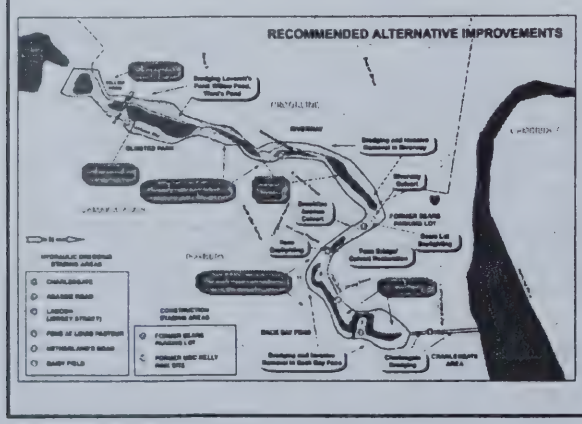
- Upgrade catch basin cleaning / street sweeping program (All)
- Maintain restored banks, pathways and uplands (BPRD, Brookline)
- Correct "desire lines" (BPRD, Brookline)
- Local stormwater regulations (Brookline)
- Develop plan to enforce pooper scooper regulations (All)

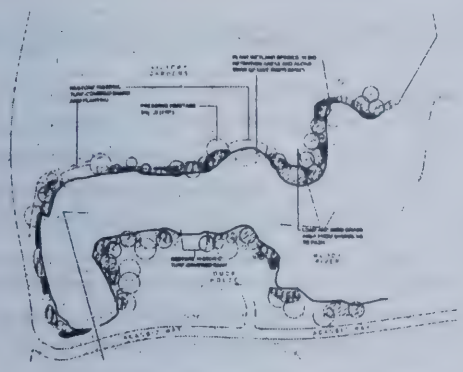
Best Management Practices - Non Structural (con't)

- Develop geese control plan (All)
- Institute water quality monitoring program
- Improve leaf collection programs
- Eliminate or modify mesh trash barrels

Best Management Practices - Structural

- Wetland bioretention swale - Victory Gardens
- Particle Separators
- Stormceptor at Walnut Street
- In-stream sedimentation basins





Back Bay Fens at Victory Garden

Flood Control Benefits from Improvements

- Significantly reduces substantial monetary damages from storm similar to 10/96
- Afford added protection to area with 10 universities and 7 hospitals
- Eliminate invasive species that re-grow to restrict flood channel

Environmental Benefits from Improvements

- Ability to meet dissolve oxygen criteria for Class B waters
- Improved aquatic habitat (quality and quantity)
- Removal of contaminated sediments from environment (some are RCRA)
- Increase bio-diversity of riparian habitat
- Decrease bank erosion contributing to sedimentation and loss of park

Benefits to Historical Resources

- Rehabilitate lost historic landscapes
- Recreate some historic shoreline features
- Reduce future deterioration on existing historic resources

Environmental Impacts of Project

- Temporary disturbance and runoff from construction areas
- Turbidity from dredging and filtrate
- Disturbance of benthic community, fish and other resources
- Wetland impacts
- Temporary pedestrian and traffic impacts
- Construction noise (piles for structures/sheeting)
- Odors

Mitigation Measures

- Hydraulic dredging to reduce turbidity and odor
- Use of silt curtains, filtering of dewatering discharge
- Truck staging areas
- Independent environmental monitor
- Provide temporary pedestrian walkways
- Noise monitoring
- Replanting wetland and riparian vegetation
- Culvert replacement using style of historic structures

Management and Maintenance

- Consideration of joint management restructuring
- Use of MEPA Annual Update Report
- Quality assurance report logs
- Raise maintenance standards
- Increase staff resources through training, hiring and volunteers
- Monitoring and maintenance programs

Estimate Project Cost

Charlesgate	$ 1,915,000
Back Bay Fens	47,033,000
Riverway	9,048,000
Leverett Pond	6,126,000
Willow Pond	2,097,000
Ward's Pond	3,904,000
Engineering	8,900,000
Structural BMPs	11,255,000
Program Management Costs	800,000
Total	$91,078,000

What is next?

Submit Draft EIR to MEPA	Jan 2002
Complete Corps of Engineers Decision Document	March 2002
Permitting for Early Action Item	Spring 2002
Begin Construction Early Action Item	Spring 2002
Begin design for remaining Muddy River Restoration	Summer 2002
Final EIR to MEPA	Fall 2002
Permitting for Muddy River Restoration	Fall 2003
Begin Construction of Muddy River Restoration	Winter 2003/04

Questions and Answers

Recommended Project for EIR (1 of 4)

- Daylight former Sears Parking Lot and upstream of Fens Bridge with natural channel configuration following historic shoreline where possible.
- Fully dredge Muddy River primarily using hydraulic dredging method with a primary group of 6 staging areas.
- Replace culverts under Riverway, Brookline Avenue with arch culverts.

Recommended Project for EIR (con't 2 of 4)

- Remove invasive species along entire length of project area primarily using mechanical means from the water.
- Plant wetland and riparian vegetation along banks where invasives are removed and along banks with no vegetation to stabilize banks and reduce erosion.

Recommended Project for EIR (con't 3 of 4)

- Restore historic islands to increase wildlife habitat and reclaim the Olmsted historic landscape.
- Provide sandy gravel bottom in selected river / pond areas to encourage fish spawning.
- Restore Babbling Brook downstream of Willow Pond by modifying current outlet and refurbishing bed upstream of Willow Pond.
- Rehabilitate bank areas along the project area to restore historic shorelines where possible.

Recommended Project for EIR (con't 4 of 4)

- Rehabilitate the project area in accordance with the 1990 Emerald Necklace Master Plan ("the continuum").
- Institute Best Management Practices (BPMs) for stormwater management.

Emerald Necklace

Environmental Improvements Master Plan

And

Phase I Muddy River Flood Control, Water Quality

Habitat Enhancement and Historic Preservation

Public Informational Meeting

March 13, 2002

Sign-In Sheet

Check to Add to Mailing List

Name	Affiliation/Address	Phone	E-mail
☑ JAMES LEMONIAS	GREEK CATHEDRAL	781-447-2422	JLEMONIAS@AOL.COM
☐ Arthur Pugsley	MEPA/EOEA	617 626-1029	arthur.pugsley@state.ma.us
☐ RICHARD MERTENS	BRA	(617) 918-4283	
☐ John Burckardt	Project Mgr c/o Boston Parks	617-635-4505	jburckardt@ci.boston.ma.us
☐ TOM BRADY	TOWN OF BROOKLINE	617-730-2058	
☐ ROBIN VRANICAR	GOODKIND & O'DEA	617-695-3400 x3115	RVranicar@goodkind
☐ Angie Parker	BPRD	617-635-4505	
☐ Mark Leccese	Boston Globe		mleccese@bu.edu
☐ ERIK EKLUND	WENTWORTH ARCHITECTURE STUDENT	617.734.6790	eeklund@metzero.net
☐ KIRK FALLIS	MOOR	617-727-2224	
☐ LORAINE DELLA PORTA	MOOR	"	
☐ Kenneth Arnold	Diocese of Mass	617-482-5800, ext 506	karnold@diomass.org
☐ Pattie Weikert	Mass. Comm. Water Watch	617-879-7735	cleanupoz@Hotmail.com
☐ PETER SCOTT	BROOKLINE POLICE 350 WASHINGTON ST	617 730-2248	
☐ ROBERT WRIGHT	57 ST STEPHEN ST	617-262-4255	FENWAY1@EARTHLINK.NET
☑ MARC LADERMAN	67 GAINSBOROUGH ST #407	617-821-8177	mladerman@syzygy.com
☐ Brenda Lew	Friends of Muddy River 107 Queensberry St. #2 Boston 02215		

Emerald Necklace
Environmental Improvements Master Plan
And
Phase I Muddy River Flood Control, Water Quality
Habitat Enhancement and Historic Preservation

Public Informational Meeting

March 13, 2002

Sign-In Sheet

Check to Add to Mailing List

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Karen Venzie	MDC	617-859-8647	
SAIF ALSAYED.	75. St. Alphonsus. 1410. Boston.	617 510 8679	Eir7al@hot
MARTA RIVERA	OFFICE OF COUNCILOR M. ROSS	617.635.4225	MRIVERA. RIVE Ci. BOSTON.
Hugh Matheson	CAC		
Svarey G	Boston 6	6179293173	
Tom Hagen	90 Carlton St Brookline	02446	
ALAN BANKS	OLMSTED N HS	Brookline 02445	
Rob Rose			
Wilbur Cone	75 St. Alphonsus St.	Apt. 407 Boston, MA	(617) 739-0825 02120
Tim Famulare, Boston Conservation Comm.		617 635-4417	Timothy. Famulare @ci.boston.ma
MARIE C. CONE	75 St. Alphonsus St, #407	Bos	617-879-0
Frederick Veikley	-231 Park Dr.-	Fenway C	
Richard Gordon / Ron Fitzgerald		722-225	
Jeffrey Ferris / Bike Boston - Emerald Necklace Greenway		617-522-1382	
JOE RONAYNE	121 Park Drive, #18	02215	jronayne@aol.com

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Emerald Necklace

Environmental Improvements Master Plan

And

Phase I Muddy River Flood Control, Water Quality

Habitat Enhancement and Historic Preservation

Public Informational Meeting

March 13, 2002

Sign-In Sheet

Name	Affiliation/Address	Phone	E-mail
Liv Cheney Sassman	JPNC POSC	(617) 983-0275	—
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Jane Gilkes		6172872721	
WILBUR CONE	SELF	25 ST. ALPHONSUS ST. #3	BOSTON, MA 02120

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Muddy River
Public Meeting

Sign-in

Name	Address/Affiliation	Phone/E-mail
Dave Langseth	Northeastern University	617-373-3992 langse coe.in
Frances J Kemp	CAC	
Richard J Gordon	Rep. Kevin Fitzgerald	72222
Frederick Verkley	FCA	
Kelly J Sullivan	Fenway Alliance	617-437-75

MEMORANDUM

DATE: March 14, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice

Tuesday, March 26, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

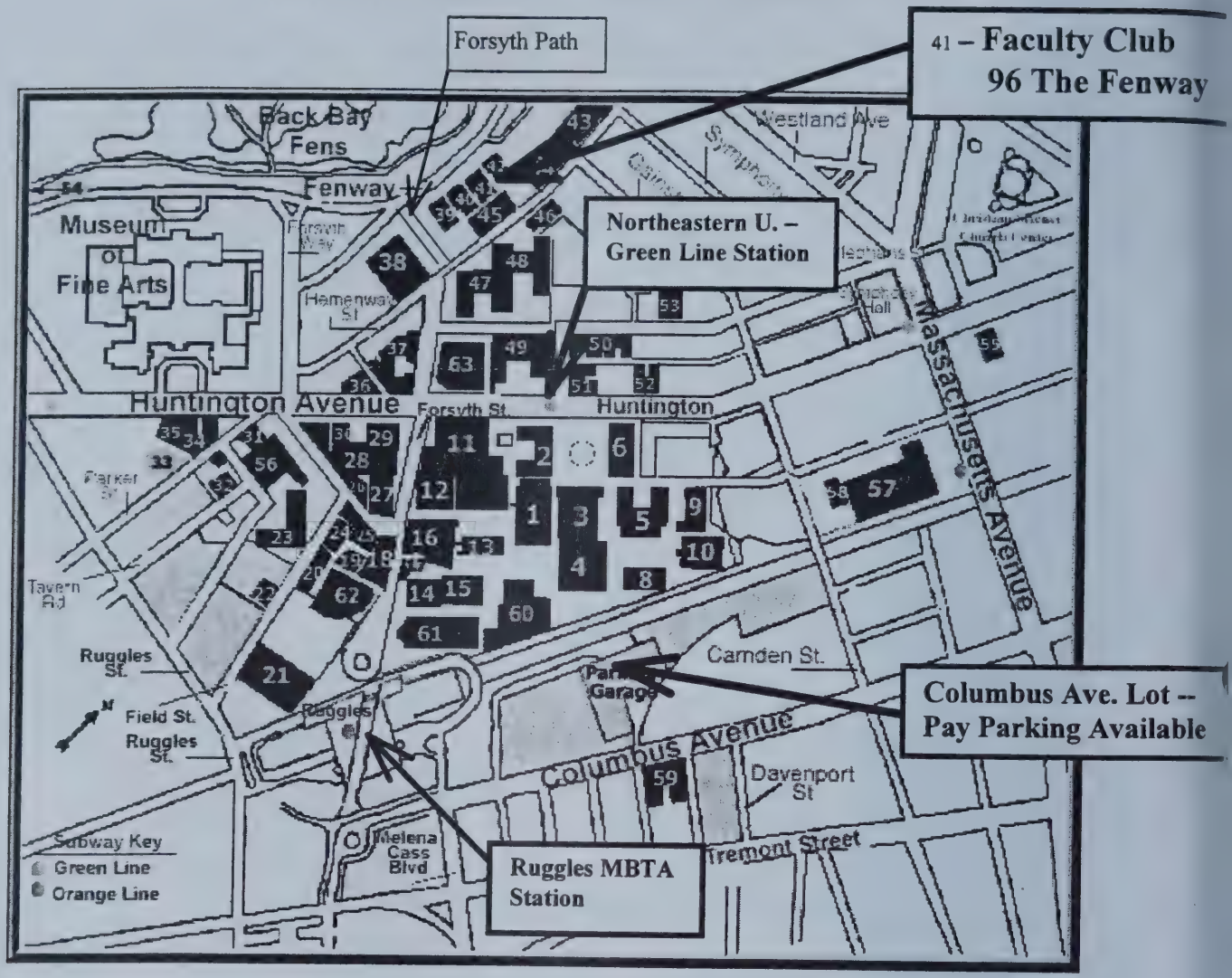
Agenda Topics: CAC Review of Draft Environmental Impact Report (DEIR) – Finalization of the Comment Letter to the Secretary of Environmental Affairs
- Presentation on the Draft Final Design for the Charlesgate Dredging construction contract

5:45 p.m. Refreshments
6:00 p.m. Presentation & Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):

The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):

Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Orange Line:

Exit at Ruggles Station. Use the Forsyth Street exit. Walk 2 blocks, cross Huntington Avenue (traffic light) and continue one more block. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Parking Garage:

Cross the tracks using the concourse through Ruggles MBTA station. Next, follow direction (above) from Ruggles Station to the Faculty Club at 96 The Fenway.

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – March 26, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine M. Della Porta, MA Office of Dispute Resolution, CAC Facilitator
Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator
John Burckardt, P.E., Project Manager

Documents Distributed:

- Comments on Draft Letter to the Secretary from Ed Cutler, Gary Hilderbrand and George Proakis
- Memorandum from John Burckardt: Update on related projects
- Agenda
- Copies of the Draft Letter to the Secretary

II Charlesgate Presentation of Draft Final Design – Bruce

Bruce Conklin, PE, Vice President, CDM
Jim Winkler, PE, Project Manager, CDM
Marion Pressley, FALSA, President, Pressley Assoc.

Note: A set of half-sized plans was distributed to CAC members present.

Civil/Hydrology (J. Winkler)

Presentation:

- CAC has opportunity to comment on the design of Charlesgate.
- Discussion of dredging from Richardson Bridge to Charlesgate culverts at Storrow Drive.
- Dredging will occur from summer 2002 through December 2002. After that, there will be an interim restoration of the staging areas that will remain for 1 to 2 years,

until the remainder of the Muddy River Restoration Project reuses these staging areas.

- Future meetings on Charlesgate area will take place later in the year at a public meeting forum. This will discuss how the park should be after the staging areas are reused.

- The project includes 15,000 ft area, and is vital first step to improving the hydraulic capacity of the river.

- 3000 cy of material will be removed through hydraulic dredging.

- For Charlesgate, the plan is to dredge from upstream to downstream. Although this is contrary to normal practice, it is feasible for Charlesgate because of the short section of the river involved.

- Dredging will be to an elevation of 1.03 (Boston City Base) throughout the Charlesgate areas (and for a majority of the river all the way to the Sears parking lot under the next construction contract).

- Slurry from dredge material will be dewatered on site and recharged into river. A siltation curtain is shown on Plan C-6.

- Catch basins will be protected inside the staging areas. Majority of work takes place in staging area, not on the river.

- Controlling dust will be mitigated through wetting techniques, installation of a silt fence, etc.

- Temporary information kiosks will be included on the site, as well as two permanent historic signs (similar to those in other sections of the park) that will identify the Charlesgate area as part of the Emerald Necklace. These kiosks will be a prototype and are expected to be integrated into other phases and areas of the project.

- Stop logs will be removed to elevation 1, flush with dredging level. Pre and post dredging survey will ensure accuracy of river depth levels.

- During the 2-year maintenance period, the contractor will be taking water quality samples as part of the mitigation measures.

- Trucks will access the site from Beacon Street, but can access either staging areas. There is a provision preventing truck queuing in this area.

CAC Comments:

- A CAC member commented that fencing should be installed to prevent homeless population and others from interfering with construction area.

- A CAC member questioned whether soil underneath the overpass has been tested for contaminants. Bruce Conklin of CDM responded that testing of the soil is not anticipated, based on either existing conditions or on the material to be handled at the staging area.

- A CAC member raised a question relating to who will repair damaged fencing due to vandalism. The consultants noted that fencing will be installed only around the two staging areas and that repairing damaged fencing at the staging area will be the contractor's responsibility.

Landscape (M. Pressley)

- Goal right now for Charlesgate is partial restoration - only plantings that will not be disturbed while the staging areas are re-used.

- Sidewalks will be repaired, wheelchair access will be added where necessary. Where pavement is replaced, pavement material used will be consistent.

- Washouts areas along Beacon Street bridge are being treated with riprap below the bridge to minimize erosion that currently exists.

- Plantings will follow Olmsted plant lists.

- Street furniture located within the staging area will be removed, including lighting, benches and trash recepticles. The U-shaped pedestrian walks will also be removed. Certain areas will be toped with temporary stone dust material when this phase of project is completed, so that it can be removed for future landscaping.

- Plantings along the river bank will be protected by temporary fencing that will be removed when the plants are established.

- The seating area at Charlesgate East will not be touched in Phase 1, although the banks will be stabilized.

- Contractor will be responsible for care of site and plantings for 2 years. When the next construction contract begins, that contractor will take over the staging areas. After the 2-year maintenance period, the MDC will take care of the new plantings.

CAC Comments:

- A CAC member posed the question whether graffiti removal can be part of this phase of the project as this would be an important symbolic gesture regarding the Park.

- Various CAC members questioned whether stone dust is the best material to used in the interim. Would it migrate into the river? Marion Pressley noted that the staging area will be layered with stone dust to look "temporary." Also, she noted that stone dust should not migrate as it tends to compact when wet.

- A CAC member noted that there is the potential for a connection from Charlesgate to the Esplanade and that such a connection should be linked with the pedestrian and bicycle pathways through the Necklace. Samantha Overton noted that a consultants to the MDC is reviewing a potential site for bike path access from Charlesgate to the Charles River as an amendment to the Charles River Historic Basin Master Plan.

III Review of Draft Letter to Secretary Durand

CAC members commented on pages 1 and 2 of the draft comment letter. See various items under "wrap-up." Fran Gershwin will coordinate the incorporation of comments into the draft letter.

IV Wrap-up

- Another meeting will be scheduled for Tuesday, April 2nd or Wednesday, April 3rd.
- Future comments on the Letter should be e-mailed to the entire group, and discussed and the meeting next week.
- Editorial comments will be incorporated into the letter by the drafting committee, while substantive changes will be discussed at the next meeting.
- Comments should be sent in to the drafting committee by Thursday, March 28. The revised Letter will be distributed to the CAC on Monday.
- George Hagerty requests that CAC consider the mechanics and vision for the future role of the CAC. Including the following areas:
    - Meeting frequency
    - Reviewing annual reports
    - Boston/Brookline public meetings
    - BMPs
    - Role of CAC past construction phase
    - Should CAC be part of the management plan that will be part of FEIR

MEMORANDUM

DATE: March 28, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice

Note --- Additional Meeting Added!!!

Tuesday, April 2, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: Continuation of **Review of Draft Comment Letter** from the CAC to the Secretary of Environmental Affairs regarding the Draft Environmental Impact Report (DEIR)

5:45 p.m. Refreshments
6:00 p.m. Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Note to CAC Members:

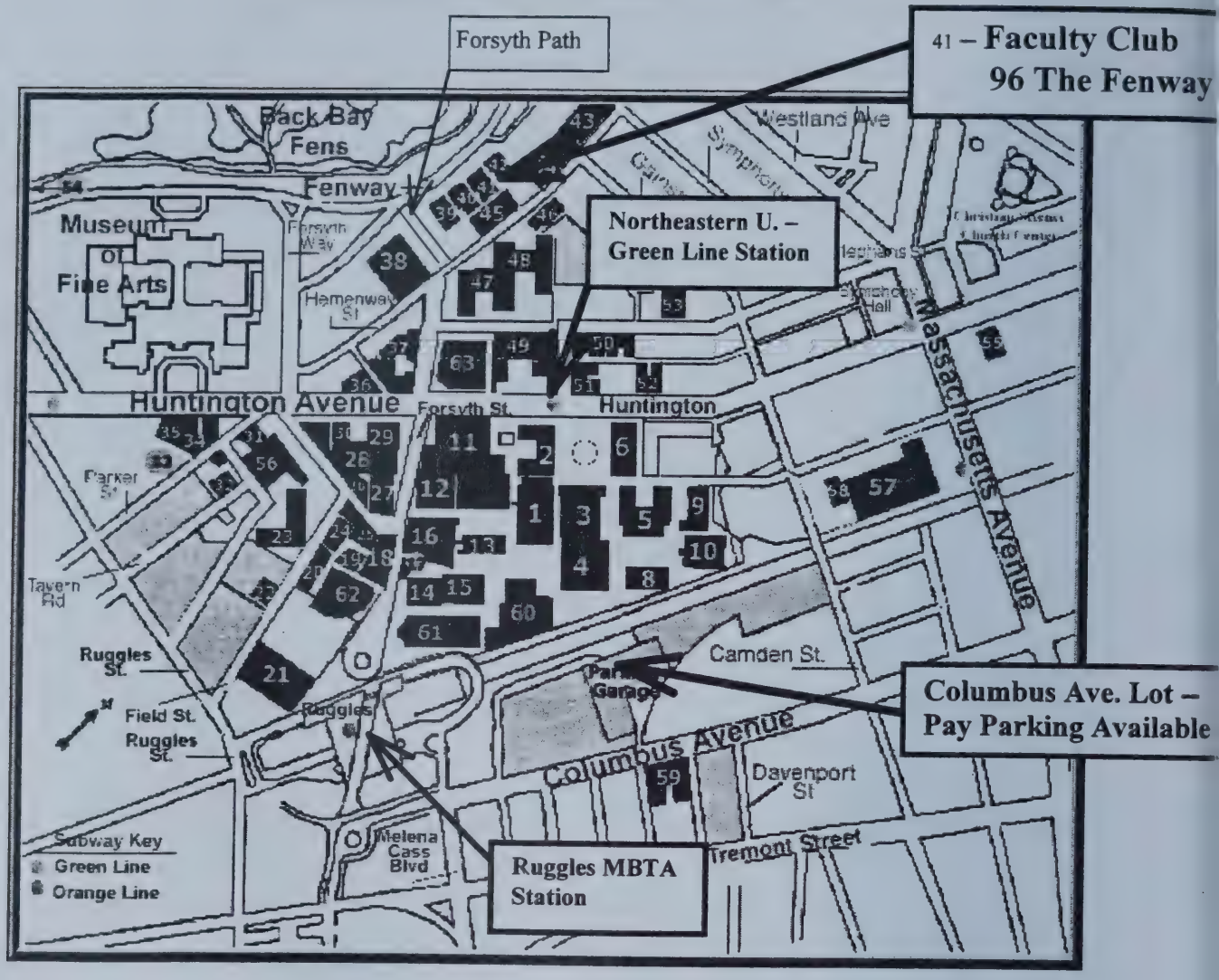
This letter will represent the consensus of the CAC as a whole. It is important that all CAC members provide their input into the letter review process. Please try to attend.

Otherwise, please provide your comments **in advance** of April 2nd to Fran Gershwin (CAC member compiling comments on draft letter) at

20 Park Plaza, Suite 472, Boston, MA 02116
(617) 948-2585 fgershwin@attglobal.net

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):
The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Orange Line:
Exit at Ruggles Station. Use the Forsyth Street exit. Walk 2 blocks, cross Huntington Avenue (traffic light) and continue one more block. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Parking Garage:
Cross the tracks using the concourse through Ruggles MBTA station. Next, follow direction (above) from Ruggles Station to the Faculty Club at 96 The Fenway.

Emerald Necklace Citizens Advisory Committee

Meeting

April 2, 2002

Sign-In Sheet

Name		Affiliation	Signature
Charles Alan	Birnbaum	National Park Service	
Dudley	Bonsal	Charles River Watershed Association	
Kelly	Brilliant	Fenway Alliance	
Edward	Burke	Restore Olmsted's Waterway Coalition	
Isabella M.	Callanan	Friends of the Muddy River	
Suzanne	Comtois	Fenway Community Development Corp	
Christine	Cooper	Jamaica Pond Project	
Edward	Cutler	Brookline Resident	Ed Cutler
Frances Allou	Gershwin		
Alan	Goodman	The Abbey Group	
George	Hagerty	Fenway Studios, Inc.	
		Boston GreenSpace Alliance	
Adam	Kahn	Brookline Conservation Commission	
Frances J.	Kemp	FCA, Friends of the Muddy River, Fenway Resident	
John	Leahy	Northeastern MPA Student	

Emerald Necklace Citizens Advisory Committee

Meeting

April 2, 2002

Sign-In Sh

Name		Affiliation	Signature
Arleyn A.	Levee	National Assn. For Olmsted Parks ✓	
Arlene	Mattison	Emerald Necklace Conservancy	Mattison
Hugh	Mattison	Friends of Leverett Pond	
Lauren	Meier		Lauren Meier
George	Proakis	Boston Resident	
Marion	Sabal	Fenway Garden Society	
Fredericka	Veikley	Fenway Civic Association ✓	
Eileen	Woodford	Nat'l Parks & Conservation Asn	

\\parksmail\bospark\Muddy\CAC Meetings\CAC-40 Apr 2 2002\[CAC Sign-in Apr 2 2002.xls]CAC Members

Emerald Necklace Citizens Advisory Committee

Meeting

April 2, 2002

Sign-In Sheet

\\parksmail\bospark\Muddy\CAC Meetings\CAC-40 Apr 2 2002\[CAC Sign-in Apr 2 2002.xls]Add'l sign-in pages

Name	Affiliation/Address	Phone	E-mail
Lorraine Della Costa	MODR / Arborway Boston	727-2824	lorraine.dellacosta@state.ma.us
SIMONE Austen	ENC		
Patrice Kish	DEM		
John Burdett	PM % Bos. Pads	617-635-4505	
Angie Parker	BPRD	617635-4505	
Margaret Dyson	BPRD		
Jeannie Adamis	MODR		
Kara Wilbur	FPA		

EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

AP O

April 8, 2002

Mr. Bob Durand
Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Mr. Arthur Pugsley, IV, EOEA No. 11865
251 Causeway Street, Suite 900
Boston, Massachusetts 02114

RECEIVED
APR 8 – 2002
MEPA

RE: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project, EOEA No. 11865

Dear Secretary Durand:

The members of the Emerald Necklace Citizens Advisory Committee ("CAC") enthusiastically support the Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project (the "Project"). The CAC believes that the Draft Environmental Impact Report ("DEIR") meets the requirements of the Scope set forth in the April 29, 1999 Certificate of the Secretary of Environmental Affairs on the Environmental Notification Form (the "Certificate"), and the requirements of 301 CMR 11.07(6). The CAC believes that there are certain issues for which the Proponents should provide further detail and analysis. These are outlined below. However, the CAC urges you to make a finding that the DEIR is adequate, and that such further detail and analysis be set forth in the final environmental impact report ("FEIR").

The CAC understands that it is important for the approval of the Charlesgate portion of the Project to proceed as quickly as possible so as to insure that federal funds available to defray a significant part of the cost are not lost. While it is agreed that it is necessary to dredge this area, as a first step to insuring the ultimate success of the flood control aspects of the whole Project, dredging in this area alone is not sufficient, and will not by itself alleviate the threat of flood anywhere within the Muddy River watershed. The information provided in the DEIR with respect to Charlesgate meets the special requirements for that area outlined in the Certificate. We do not believe that allowing this small portion of the Project to proceed before environmental analysis of the full Project is complete will result in any negative environmental impacts. We therefore urge

you to allow the Charlesgate dredging to proceed in advance of the rest of the Project, as authorized in the Certificate.

The members of the CAC would like to thank the Secretary for giving them the opportunity to participate in this Special Review Process for the Project. The CAC wants the Project to proceed in its entirety. We look forward to continuing our involvement with the Proponents, the Emerald Necklace Conservancy, and hopefully, the MDC as well, to realize the vision expressed in the Emerald Necklace Master Plan.

The CAC commends the Proponents for their cooperation in developing and proposing the project as outlined in the DEIR. The CAC supports the consultants' thorough analysis of the project alternatives and screening methods used to select preferred alternatives including, but not limited to, bank-to-bank dredging and associated environmental mitigation. The Project was well communicated to the CAC over the course of two (2) years of meetings and is appropriately reflected in the DEIR.

Both the Proponents and their consultant team performed in an effective manner to educate the CAC and to develop a sense of trust around highly technical aspects of this complex project. The CAC would like to specifically commend Marion Pressley, of Pressley Associates, Inc. and Dr. Charles Beveridge, for their diligence in mining and compiling the historical data necessary to effect sound rehabilitation of the cultural landscape; Bruce Conklin and the team from Camp, Dresser & McKee, for the care and attention to detail with regard to the engineering of the Project; and Jason M. Cortell and Associates Inc.

System-Wide Vision

The Emerald Necklace was designed and constructed as a continuous park system. This Project should reflect that same seamless connection – from Charlesgate through Wards Pond, and across all three ownership jurisdictions – Boston, Brookline, and the MDC. Furthermore, consistent high-quality maintenance is essential to the future success of a project of this magnitude and national significance. To achieve the goals of the Project, there must be a system-wide maintenance and management approach commensurate with the anticipated level of capital investment. Just as achievement of the outcome intended by this Project is dependent on the completion of all phases, maintenance procedures must encompass the entire park system, including this Project and future phases. Uniform standards for the entire system that address maintenance activities, regulations, signage, and pedestrian crossings are examples of the types of good stewardship mandated for this Emerald Necklace Park System.

Stewardship / Future Commitment

A long-term commitment by the Proponents is the most critical component of this Project. No one has stated this premise more clearly than Frederick Law Olmsted himself, who wrote in 1873:

> *"The Park Commissioners are trustees and managers for the whole body of owners of a large amount of public property. Their business is of two kinds; that of forming parks [and] that of keeping them. The second is the graver responsibility. The Commissioners are to be holden to a stricter account if the arrangements they make for it are ill judged or if they delegate it to faithless or indifferent agents."*

The CAC recognizes that the current conditions of the park system have resulted from deferred maintenance, limits on funding, and a lack of both stewardship and a full understanding of the resource's needs. The Proponents have not fully persuaded the CAC that they will live up to the stewardship standards the public and the Secretary both expect. The park system deserves a long-range view, which should be the cornerstone of this Project and the realization of the Emerald Necklace Environmental Improvements Master Plan.

We recognize that the City of Boston and the Town of Brookline are parties to the Memorandum of Understanding ("MOU") effective as of November 4, 1999 with the Executive Office of Environmental Affairs, and others. We further recognize that in entering into the MOU, the municipalities have undertaken to work together to submit a joint maintenance and management plan and have accepted responsibility for their respective shares of future maintenance and management costs. We firmly believe that the Proponents should be required to provide in the FEIR specific details of how they will meet these responsibilities. O-1

Maintenance and Management

The Maintenance Plan prepared by sub-consultant ETM Associates ("ETM") at the request of the CAC (and included as Appendix J to the DEIR) provides guidance in achieving the high standards of stewardship we all expect for this treasured landscape and water park. These stewardship standards will best be achieved by the creation of a new management structure, such as one of the operating models described by sub-consultant Clarissa Rowe (of Brown and Rowe, Inc.) in Table 8.1, Comparison to Other Park Models. Completion of this Phase I Project will contribute significantly to the goal set forth in the Environmental Notification Form ("ENF") "to ensure the continued restoration of Olmsted's Emerald Necklace in its entirety." The CAC believes that the mitigation techniques outlined in the DEIR will minimize negative environmental impacts and the associated effects upon the citizenry, only so long as they are O-2

carefully implemented and monitored throughout, and well beyond the construction phases of the Project. O-2

Management

The need for an organizational structure to ensure consistent management throughout the park system was repeatedly discussed by the CAC. While the CAC is disappointed that the sub-consultant's report on management models did not make a specific recommendation, we recognize the difficulties of managing this park system, which is located in multiple jurisdictions.

The Proponents have described four (4) new alternative management structures in the DEIR. They have also stated that one of these alternatives will be identified in the FEIR as the initial management structure. The CAC supports this approach and recommends that a cooperative cross-jurisdictional management structure be studied, selected, and described in the FEIR, including a timetable for implementation. The CAC encourages the Proponents to involve both the Emerald Necklace Conservancy and the CAC in developing the management solution, where appropriate. O-3 CONT. ON p.10

The CAC also supports the concept of an overall maintenance coordinator to oversee the resource, regardless of the management structure selected. The role of such a coordinator should be carefully defined and the position included in whichever new management structure is specified in the FEIR. The development of such a position should also involve the advice and participation of the CAC and the Emerald Necklace Conservancy. O-4

Maintenance

The CAC believes that high quality maintenance is crucial to the success of the Project as the Certificate makes clear. The Certificate specifically requires the proponents to include in the FEIR clear and specific requirements with respect to a management and maintenance plan.

The inclusion of the ETM Maintenance Plan in the DEIR is a welcome step towards addressing the CAC's serious concerns about maintenance of the existing, and soon to be rehabilitated, resource. To accomplish the much needed goal of a one-park, one-system view, higher maintenance standards should be consistently applied across all jurisdictions and techniques used should be specific to each particular type of parkland, as specified in the ETM Maintenance Plan. The CAC suggests that public/private partnerships, appropriate employee training and oversight, and modern technology methods (including use of electronic databases and geographic information systems) be adopted. We urge the Secretary to require the Proponents to commit to this plan, or an equally acceptable one, and for the Proponents to provide more information about the required resources as a part of the FEIR. O-5

Commitment to Project Goals Including Historic Resources

The five objectives – Flood Control, Water Quality and Wildlife Enhancement, Historic Preservation and the Institution of BMPs – should be given equal emphasis. While acknowledging that the immediate need for this Project is flood control in both Boston and Brookline, the other goals have long-term implications for the historic character and environmental health of the park system. Contradictory statements, omissions, and inconsistent references to Historic Preservation should be corrected in the FEIR. The CAC supports the rehabilitation of the entire Emerald Necklace Park System and its contributing features, consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties. O-6

Funding

The CAC's primary concern is the Proponents' ability to maintain a continued financial commitment to the Project. In order for the Project to be successful, the Proponents must make a considerable capital investment and increase their operating funds to safeguard both public and private expenditures. We stand ready to assist and support the Proponents in securing the necessary capital investments needed to ensure the successful completion of Phase I of the Project. O-7

While the federal and state governments, we trust, are committed to fund major portions of the Project, financial commitments from the Proponents must be secured. For example, operational and capital budgets should be consistent with the needs of this Project. Projections of expenditures should identify (wherever possible) the anticipated source of revenues which support them. Over the intermediate and long term, the Emerald Necklace Conservancy should be invited to participate in developing a requisite funding strategy. O-8

The CAC believes it is most unfortunate that the Metropolitan District Commission ("MDC") is not a proponent of the Project. Given that the MDC parkways are adjacent to many parts of the Muddy River, failure to successfully involve the MDC will continue to have short and long-term deleterious effects on the sustainability of the Project and the health of the park system. The CAC strongly recommends that dedicated funding, possibly through a line item, be provided by the MDC for Emerald Necklace park maintenance and stormwater BMPs within its jurisdiction. O-9

Increased maintenance funding is needed to properly care for and sustain these Project improvements as well as the entire Emerald Necklace Park System. For example, as stated in the DEIR, Brookline and Boston need an additional 13.8 full-time employees (21,575 hours), for maintenance alone in order to close the O-10

gap between existing and needed staffing. Similarly, the MDC needs to increase its maintenance capacity commensurate with the Proponents. O-10 CONT.

The use of an increasingly efficient workforce, or volunteers, to accomplish the goals of this Project should not be assumed by the Proponents. Progress toward improving maintenance standards should be measured against performance, and with CAC concurrence.

Best Management Practices ("BMPs")

The Proponents' consultant team has emphasized to the CAC that the effective implementation of Best Management Practices is crucial to minimizing re-sedimentation and maximizing the useful life of the capital investment. As future Emerald Necklace Master Plan projects proceed through the MEPA process, the CAC recommends that the Secretary require appropriate BMPs to be consistently implemented. It is imperative that the Proponents, the MDC, and other property owners abutting the park system, as well as those in other municipalities within the watershed, fund and carry out the recommended BMPs. O-11

The CAC strongly supports past as well as ongoing BMPs which the Proponents have undertaken, such as elimination of illegal cross connections, regular street sweeping in the Fenway area, control of Canada geese through use of fencing and other proactive measures, and monitoring of water quality at Willow Pond. These efforts must be expanded. A guiding principal throughout this Project should be continued progress by the Proponents in implementing and monitoring BMPs, both existing and proposed. To monitor progress, the CAC recommends that the Secretary require the Proponents and the MDC to report regularly on the implementation of BMPs within the entire park system. At least initially, beginning with the issuance of the Secretary's determination on the FEIR, such reports should be prepared semi-annually. The appropriateness of semi-annually reporting could be reviewed at a later time. O-12

The following BMPs (though not a comprehensive list) should be implemented:

- ✓ Street sweeping accompanied by a towing program. (Signage is in place, but towing must be enforced to ensure that streets actually get cleaned.) O-13
- ✓ Reduction of animal waste, litter, and improper dumping in storm drains through public education, signage, and ordinance enforcement (including fines). O-14
- ✓ Immediate efforts to control the Canada goose population, as a first step in a regional solution. O-15
- ✓ Collection of trash and yard waste at the Victory Gardens. O-16
- ✓ Reset low curbs and repair broken curbs throughout the system to minimize runoff and erosion. (While low curb settings are usually O-17

associated with the MDC parkways, they are also a problem in Brookline on Pond Avenue.)

- ✓ Consider an alternative location, such as Millenium Park, if the Daisy Field staging area will disrupt softball for more than one season, to reduce erosion into the adjacent waterway.] O-18
- ✓ Maintain a permanent record, accessible to the Proponents and the CAC, of BMP activity including catchbasin cleaning and dredging.] O-19
- ✓ Consider cisterns or other methods to reuse stormwater runoff and reduce irrigation requirements, consistent with recently-published EOEA guidelines (One possible location is Mother's Rest.)] O-20
- ✓ Apply consistent standards for street-sweeping and catch-basin cleaning throughout all jurisdictions within the watershed (including Mass. Highway's Route 9).] O-21

Furthermore, to the extent that these and other BMPs can be implemented during, or even before construction, the CAC strongly recommends that the Proponents do so. Wherever feasible the Proponents should work together to implement all BMPs consistently throughout the park system.] O-22

Infrastructure

The DEIR describes infrastructure needs in Boston, but clearly omits the culvert headwall at Leverett Pond. This should be included as a part of the Project.] O-23
The CAC also feels strongly that the City of Boston should make a timely decision on removal of the "Jug Handle" at the Sears Rotary before construction begins in the Fenway area, so that possible daylighting (and attendant cost savings through reduced culvert length) and historic shoreline alignments can be coordinated.] O-24

Construction

The CAC is concerned that the Army Corps of Engineers (ACOE) environmental document honor the Project objectives (including historic preservation) and preserve the environmental mitigation set forth in the DEIR, to the greatest extent possible without jeopardizing potential federal funds. The ACOE document should be reviewed for any differences during the public comment period. The CAC believes this Project should not be modified to allow expediencies which would change the character of the Project as described in the DEIR, and as supported by the CAC and public-at-large. For example, culverts to be built should be arched, as opposed to boxed, and the channel should follow a historic rehabilitation model, and not straightened.] O-25

The position of an environmental monitor during construction is vital to overseeing that environmental permit conditions are met. The CAC believes the provision for this position in the DEIR meets the communities' needs.] O-26

Construction work guidelines should include the following provisions:

1) Signage describing the project should be placed at each construction staging area to educate the public. O-27
2) All work should stop no later than 11:00 pm. O-28
3) A Transportation Management Plan, which would include oversight by the BTD, should be included for the Fenway Area during construction activity. O-29

Missing Information / Request for Additional Data

The following matters relating to wildlife, public health, and the future of Charlesgate were inadequately addressed in the DEIR and should be more fully addressed in the FEIR:

1) Flooding not only damages property, but spreads pollution (fecal colliform) creating a public health risk. This risk was not addressed in the DEIR and should be in the FEIR. O-30
2) More data on in-stream sedimentation basins and their water quality impacts should be provided in the FEIR. The analysis should include future dredging, frequency and cost effectiveness. O-31
3) Other BMP structures that reduce stormwater runoff at the source, such as infiltration devices and cisterns should be more fully described and analyzed in the FEIR. O-32
4) Relocation of wildlife during dredging and construction, possibly using volunteers, should be discussed with the Massachusetts Division of Fisheries and Wildlife, the Massachusetts Audubon Society, the New England Aquarium and others. O-33
5) Anticipating that the Secretary will approve early action for Charlesgate, the FEIR should include an outline and timetable for a structured public process to determine the rehabilitation of the Charlesgate parks. The CAC believes that a design charrette for this finite parkland provides an excellent opportunity for public support, participation and funding. O-34
6) Pedestrian access across Willow Pond Road should be improved in Boston. Footpaths across Willow Pond Road should connect. The current condition of desire lines by the Pond and in the area to be disturbed as a staging area is a problem of circulation and erosion. This work should be addressed in the FEIR. O-35
7) More information should be provided regarding specific site improvements at Daisy Field. These improvements should be consistent with the Emerald Necklace Master Plan. Repair of the site following its use as a staging area should eliminate erosion of field surface material into Willow Pond and light pollution at night. O-36

Executive Summary

The CAC considers the Executive Summary to be the most visible part of the DEIR, that part which will be most read by the public. As such, it should persuade as well as inform. The photographs, graphics and historical data are important inclusions. However, the project scope should be more clearly stated including the goal of historic preservation. The Executive Summary should be refined in the FEIR to provide an effective tool for educating the public about the Project. O-37

Miscellaneous Issues

There needs to be a clarification of the appropriate period for the contractor's guarantee of new plants, when inspections of new plantings should begin and the appropriate frequency of inspections for status of invasive species. O-38 While two of the islands in Leverett Pond are considered wildlife habitats and will be treated to remove invasive species, their shorelines will not be stabilized. The CAC feels that the eroding edges should be stabilized as part of the Project, as a BMP. There is contradiction in the DEIR on this point. Language on page 6-69 contradicts statements made by consultants. O-39

CAC Future Role / Responsibilities

The CAC recommends that the CAC's role be continued at least through completion of Phase 1, and anticipate that its precise role subsequent to the FEIR will be determined from discussions with the Proponent between now and the submittal of the FEIR, and thereafter with the Secretary. Specifically, we recommend the CAC's participation through the Special Review Process should include but not be limited to the following activities:

1) Review of the additional information developed by the Proponents in connection with the issues which you determine must be analyzed in the FEIR,
2) Review of updates on permitting, the Charlesgate dredging progress and other construction progress,
3) Review of progress reports on structural and environmental BMP's,
4) Monitoring of success of removal of invasive species, and
5) Review of results of water-quality monitoring.

O-40

At present, we think that the Annual Update process should include a minimum of one CAC and one public meeting, but more may be needed. In general, we think that we will be able to propose a more complete outline of our role as the FEIR is being developed and the timetable for the Project becomes clearer. We would appreciate any guidance you can provide us in that regard.

Conclusion

As stated at the outset, the CAC enthusiastically supports the Project and wants it to proceed in its entirety. We urge you to find the DEIR adequate, to allow the dredging in Charlesgate to proceed without further MEPA review, and to limit the scope of the FEIR to those issues not adequately dealt with in the DEIR. Specifically, those include the issues already discussed earlier in this letter and the following:

- ✓ Selection of a new management structure with a timetable for implementation. This should include detailed information on roles and responsibilities for maintenance, management and operation of the park system involving a collaboration of all three landowners, the City of Boston, the Town of Brookline, and the MDC. Additionally, the CAC and the Emerald Necklace Conservancy should be involved in evaluating the management alternatives. SEE O-3
- ✓ Detailed information on funding strategy necessary to complete the Project (including the increased capital costs). This funding plan should provide detailed information on the contributions by federal and state agencies as well as the municipality's required match, consistent with the MOU. O-41
- ✓ A detailed plan to improve maintenance operations for the park system, to meet the objectives outlined in the ETM Maintenance Plan. This should include an annual action plan that prioritizes the recommendations of the ETM report, provides detailed information on how the recommendations will be funded, and includes a schedule for implementing the changes prior to the completion of construction. O-5 CONT.
- ✓ Additional technical information on BMPs and sedimentation basins. O-11 CONT.

Finally, the CAC members representing the Brookline Conservation Commission and the Charles River Watershed Association do not agree with every aspect of this comment letter, and believe that certain information and analysis (beyond what is requested in this letter) is necessary or appropriate. These organizations will address those recommendations in their own comment letters.

Respectfully submitted,

The Emerald Necklace Citizens Advisory Committee:

Charles Alan Birnbaum, National Park Service
Dudley Bonsal, Charles River Watershed Association
Kelly Brilliant, Fenway Alliance
Edward Burke
Isabella M. Callanan, Friends of the Muddy River
Suzanne Comtois, Fenway Community Development Corporation
Christine Cooper, Jamaica Pond Project
Edward Cutler, Ph.D.
Frances Allou Gershwin
Alan Goodman, The Abbey Group

George Hagerty, Fenway Studios, Inc.
Adam Kahn, Brookline Conservation Commission
Frances J. Kemp
John Leahy
Arleyn A. Levee, Former Chair, National Association for Olmsted Parks
Arlene Mattison, Emerald Necklace Conservancy
Hugh Mattison, Friends of Leverett Pond
Lauren Meier
George Proakis
Marion Sabal, Fenway Garden Society
Patrice Todesco/Christine Gimbal, Boston GreenSpace
Fredericka Veikley, Fenway Civic Association
Eileen Woodford, National Parks & Conservation Association

cc: Justine P. Liff, Commissioner, Boston Parks and Recreation Department
Thomas DeMaio, Brookline Commissioner of Public Works
John F. Burckardt, PE, Parsons Brinckerhoff, c/o Boston Parks and Recreation Department
Margaret Dyson, Boston Parks and Recreation Department
Stanley Ivan, Chief Engineer, Boston Parks and Recreation Department
Erin Chute, Brookline Director of Parks and Open Space
Tom Brady, Brookline Conservation Administrator/Tree Warden
John Sullivan, Jr., Chief Engineer, Boston Water and Sewer Commission
Arthur Pugsley, IV, Executive Office of Environmental Affairs
Betsy Shure-Gross, Executive Office of Environmental Affairs
Mark Smith, Executive Office of Environmental Affairs
Patrice Kish, Department of Environmental Management
Richard Thibedeau, Department of Environmental Management
Samantha Overton Bussel, Deputy Commissioner for Policy, Metropolitan District Commission
Loraine Della Porta, Massachusetts Office of Dispute Resolution
Bruce Conklin, PE, Camp, Dresser and McKee, Inc.
Jason M. Cortell, Jason M. Cortell and Associates Inc.
Marion Pressley, Pressley Associates, Inc.

MEMORANDUM

DATE: June 14, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Tuesday, June 18, 2002

Northeastern University

Egan Engineering /Science Research Center

Forsyth Street (next to Ruggles Station)

Room 440 (4th Floor)

This is a NEW LOCATION – not the Raytheon Amphitheater!

Take the stairs or elevator to the 4th floor.

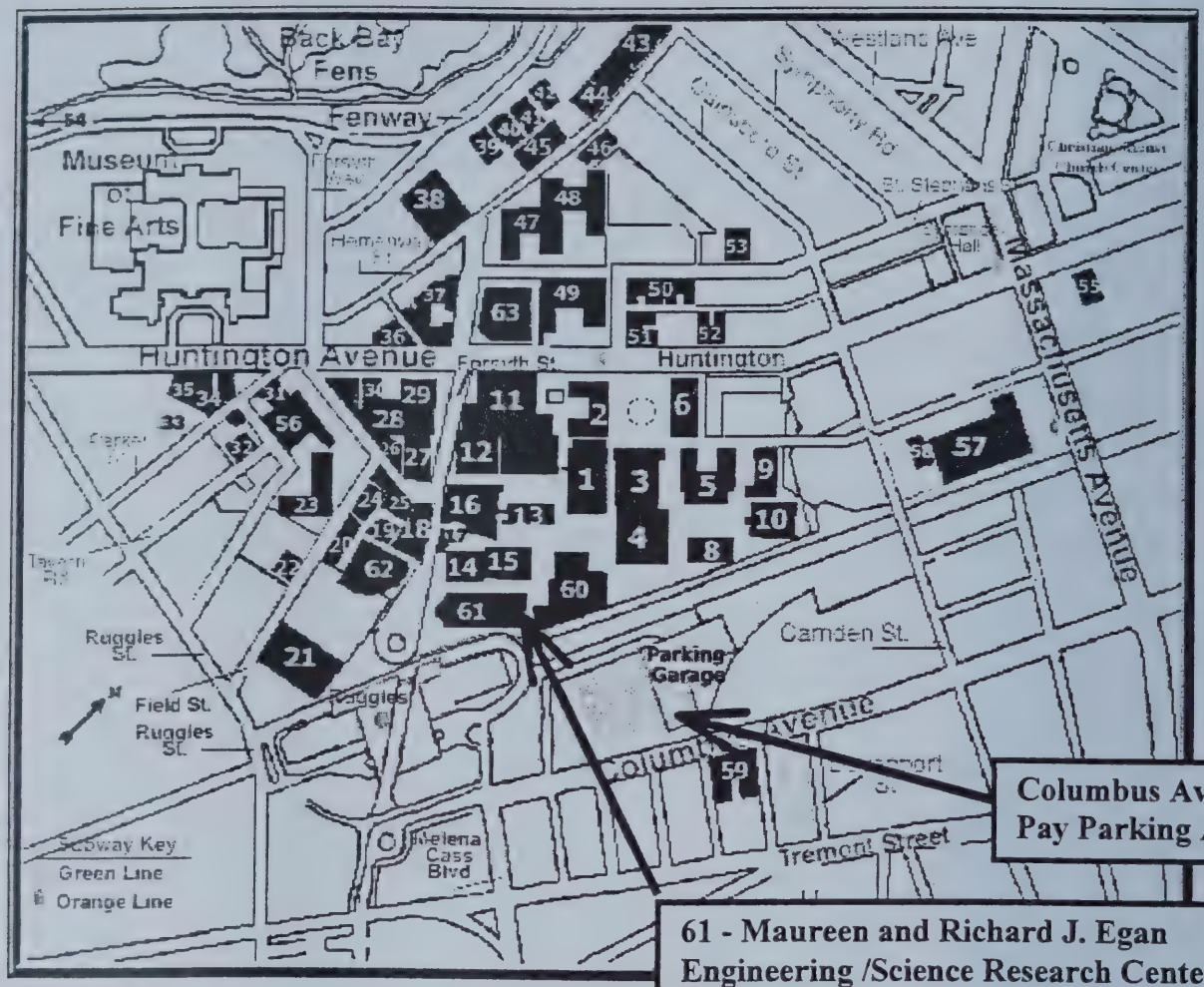
~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: Project Update

5:45 p.m. Refreshments
6:00 p.m. Discussion
7:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
Maureen and Richard J. Egan Engineering /Science Research Center
Room 440 – 4th Floor
NORTHEASTERN UNIVERSITY CAMPUS





From The Fenway (walking):
Cut through Forsyth Path and cross Hemenway Street. Follow Forsyth St. to end. Egan Center is on left just before Ruggles Station.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Left on Forsyth St. and walk to end. Egan Center is on left just before Ruggles Station.

From the Orange Line:
Egan Center is next to Ruggles Station.

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – June 18, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Jeannie Adams, MA Office of Dispute Resolution, CAC Facilitator

Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

- John Burckardtpassed around a directory of members and asked CAC members to update their personal contact information
- Back Bay yard work has commenced. There was concern relating Parks Department's employees parking on parkland.
- Landscaping and other work at BWSC Back Bay Gate Houses will occur over the summer. The exteriors of the gatehouses are being restored. Gatehouse 2 will be transferred to the Parks Department for uses relating to the Muddy River.

II Update: Draft Record of Decision & FEIR Scope

Margaret Dyson, Boston Parks & Recreation Dept., Dir of Historic Parks

- The Proponents are seeking a waiver for Phase I Dredging of Charlesgate to proceed so that the dredging work can begin their work before December, while the remainder of the project continues through the MEPA review process. In order to ensure that the remainder of the project will proceed, several conditions were included in the DROD (Draft Record of Decision), including funding, timeliness of filing FEIR, establishment of an Oversight Environmental Improvement Committee (OEIC) funded by the Proponents.
- The Proponents are in discussion on how to structure the OEIC. The committee must be independent and may be connected with a non-profit entity. The proponents are

trying to create a structure that will not be in conflict with the park management structures to be put into place.

- Question rose as to why the CAC couldn't fill this role as an OEIC.
- Research has been done into what other committee models have already been structured that might provide some help in designing this OEIC. None of the models that have been researched fit completely this specific situation.
- The Parks Dept. has been coordinating and working closely with the Town of Brookline.
- Future role of the CAC will likely involve yearly meetings subsequent to the filing of the FEIR and should the CAC wish, the possibility of more frequent meetings.
- Representative Frank Smizik provided update on the Environmental Bond Bill being voted.

III Update: Charlesgate Dredging – Bidding & Permits

John Burckardt, P.E., Project Manager

- Charlesgate bids were received on May 30th. John Burckardt distributed the bid summaries to CAC. Of the five bidders, CRC Builders was lowest bidder. It is anticipated that the contract will be awarded in August, following the issuance of permits after the Final Record of Decision is issued.
- Maintenance is included in contract for two years, and includes lawn care, plant care, removing trash from waterway, etc.
- Question was raised as to when graffiti will be removed. MDC committed to graffiti removal in collaboration with the contractors either before the staging area is set up or after the Charlesgate phase is completed.
- CAC proposed to recommend to the Secretary in a letter that graffiti removal take place prior to set up of the staging area.

Bruce Conklin, P.E., Camp Dresser & McKee Inc. Project Manager

- Need to have the FROD (Final Record of Decision) issued before the state permitting agencies can issue their individual permits. Bruce distributed a List of Permits and the current approval status.
- Question from CAC member relating to whether there is any commitment toward maintenance for the Charlesgate phase of the project. The Brookline Board of Selectmen wrote a letter dated April 4, 2002 pledging their commitment to funding future maintenance, subject to future appropriations. The City of Boston is preparing a similar letter.

- A CAC member raised the questions of how can commitment to park maintenance be guaranteed from those controlling the budget and the other agencies who are more removed from the project?

- In terms of being effective, how can the CAC be in a position to make comments and recommendations on the project if the issue of concern is not under jurisdiction of the Secretary? This issue has come up for the CAC and may also be a problem for the future advisory committee.

IV Update: Update on Army Corps of Engineers

Bruce Conklin, P.E., Camp Dresser & McKee Inc. Project Manager

- Army Corps has completed preparing their decision document and it is currently in Washington being reviewed. This review includes technical issues and policy. Currently, the proponents anticipate that the Army Corps should be in line to participate in funding for the project, with the exception of some of the funding for Wards Pond. The Army Corps is anticipating receipt of internal comments in a couple of weeks.

- A CAC member raised a question relating to whether some BMPs can be addressed prior to the start of phases of the project.

- The Corps is considering this a two-part project with the dredging as one part and the heavy construction, including culvert work as another. Currently, the Corps anticipates that culvert construction could start first. BMPs will be dealt with throughout the process.

- Met with the Corps in Concord two weeks ago, to discuss the design of the project. Reviewed geotechnical information and other design work that was included in the DEIR. The Corps needs to determine whether they have the capacity to complete the design work themselves or whether they need to contract out some work. The Corps has provided the Proponents with a Draft Design Agreement.

- The Corp will manage the construction part of the work themselves and may contract out the design work, however no final decision has been made.

V Dates for Upcoming Monthly CAC Meetings

- Introduction of new CAC members

- CAC will meet the second Tuesday of every month.

Attachment 1
Meeting Attendance – CAC Members

Emerald Necklace Citizens Advisory Committee

Meeting

June 18, 2002

Sign-In Sheet

Name	Affiliation	Signature
Charles Alan Birnbaum	National Park Service	
Vanbenser Margaret CRWA Dudley Bonsal	Charles River Watershed Association	Margaret VanBenser
Kelly Brilliant	Fenway Alliance	
Edward Burke	Restore Olmsted's Waterway Coalition	Edward J Burke
Isabella M. Callanan	Friends of the Muddy River	Isabella Callanan
Suzanne Comtois	Fenway Community Development Corp	Suzanne Comtois
Christine Cooper	Jamaica Pond Project	
Edward Cutler	Brookline Resident	Ed Cutler (Hon)
Frances Allou Gershwin		Frances Allou Gershwin
Alan Goodman	The Abbey Group	
George Hagerty	Fenway Studios, Inc..	
Kay Mathews	Boston GreenSpace Alliance	Kay Mathews
Adam Kahn	Brookline Conservation Commission	Kate Brandt for Adam Kahn
Frances J. Kemp	FCA, Friends of the Muddy River, Fenway Resident	Frances J. Kemp
John Leahy	Northeastern MPA Student	

Emerald Necklace Citizens Advisory Committee

Meeting

June 18, 2002

Sign-In Sheet

Name		Affiliation	Signature
Arleyn A.	Levee	National Assn. For Olmsted Parks	
Arlene	Mattison	Emerald Necklace Conservancy	Arlene Mattison
Hugh	Mattison	Friends of Leverett Pond	Hugh Mattison
Lauren	Meier		
George	Proakis	Boston Resident	
Marion	Sabal	Fenway Garden Society	Marion Sabal
Fredericka	Veikley	Fenway Civic Association	Fredericka Veikley
Eileen	Woodford	Nat'l Parks & Conservation Assoc.	

Emerald Necklace Citizens Advisory Committee

Meeting **Sign-In Sheet**

June 18, 2002

\\parksmail\bospark\Muddy\CAC Meetings\CAC-41 Jun 18 2002\[CAC Sign-in June 18, 2002.xls]Add'l sign-in pages

Name	Affiliation/Address	Phone	E-mail
Jeannie Adams	MODR facilitator		
Kathleen Sullivan	66 WESTLAND AV APT 303 BOSTON MA 02115		
Kay Mathew	Boston Green Space Alliance	617-426-74	
MARK P SMITH	EOEA	617 626 1050	
PATRICE KISH	DEM	617-626-1378	patrice.kish@state.
JAY WICKERSHAM	EOEA/MEPA	617-626-1131	
John Burckardt	c/o Boston Parks	617-635-4505 x6517	jburckardt@ci.boston.ma.us
Frank P Smizik	House of Representatives	617-722-6010	REP. Frank Smizik @ hou. state. MA. US
Tom Brady	Brookline Conservation		
Erin Chute	Brookline Parks + Open Space		
Margaret Dyson	BPRD		
Kara Wilbur	FPA		
Kirk Fallis	MODR		

Emerald Necklace Citizens Advisory Committee
June 18, 2002 Meeting

Phase 1 Muddy River Flood Control,
Water Quality and Habitat Enhancement,
And Historic Preservation Project. EOEA #11856
Phase 1A Charlesgate Dredging and Vegetation Enhancement
Consolidated Permit / Status Report updated June 13, 2002

Permit / Approval	**Agency**	**Contact**	**Status**
Dept. of the Army Clean Water Act 33 USC 1344, Section 404	ACOE	Paul Sneeringer	Draft 404 permit being written week of June 17th.
Section 106 National Historic Preservation Act	ACOE	Kate Atwood	ACOE letter of no impact to Historic Resources in preparation.
Section 106 and Chapter 254 Review Letter	Mass. Historical Commission	Ann Lattinville	Awaiting ACOE 106 letter for concurance.
Section 106 and Chapter 254 Comment Letter	Brookline Preservation Commission	Greer Hardwick	Same as above.
Certificate Appropriateness and Section 106 Comment Letter	Boston Landmarks Commission	Ellen Lipsey	Same as above.
Wompanoag Indian Nation Sign-off	Tribal Administrator	Laurie Perry	Same as above.

Permit / Approval	Agency	Contact	Status
Wetland Protection Act Order of Conditions	Boston Conservation Commission	Timothy Famulare	To be issued by 21 June. Public Notice on May 29th.
Chapter 91 Dredge Permit	MA DEP Waterways Regulation Program	David Slagle	Admin. review completed. Public Notice on May 30th. Awaiting WQC and Order of Conditions to issue permit.
401 Water Quality Certificate	MA DEP 401 Water Quality Certifiaction Program	Yvonne Unger	Admin. review completed. Public Notice on June 8th. Will issue 401 Cert. pending review of info requested to be provided to DEP - early week of June 17th.
MDC Construction Permit	MDC	Donald Guidoboni	Admin. Review completed. As the owner, will issue permit upon finalization of all other permits and approvals.

CDM

Muddy River Restoration Project

Management Structure
September 25, 2002

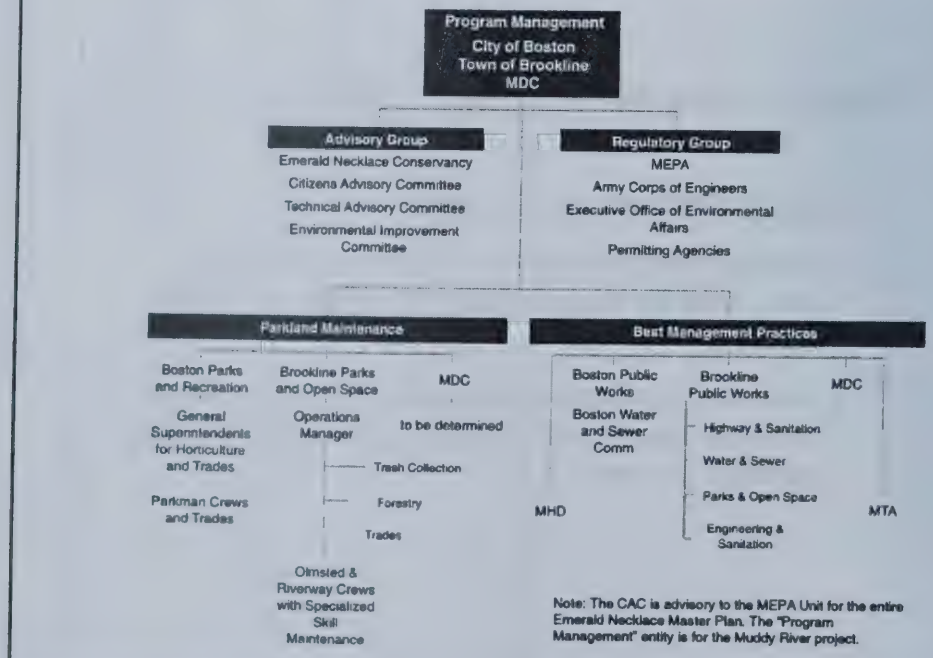
Bruce R. Conklin, P.E., CDM
Vice President

What is new since the DEIR?

- MOU will include the MDC
- Environmental Improvement Committee required by the Secretary of Environmental Affairs
- Secretary acknowledging that the resource owners would continue to manage resources under their control

Selection of a Management Structure

- Existing Management Structure
- Cooperative Management Structure
- Public / Private Partnership
- Entity Under Environmental Joint Powers Act
- Park Commission or Authority



Questions and Answers

MEMORANDUM

DATE: July 3, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration

RE: **Meeting Notice**

PLEASE NOTE

The July CAC Meeting is *Postponed*
to
Tuesday, July 16, 2002

(to facilitate obtaining a room assignment)

Location will be announced in a subsequent notice.

Schedule of Upcoming Meetings

No.	Day	Date	Time	Topic(s)	Location
42	**Tues.**	**16-Jul-2002**	**6 PM**	**Project Update**	***To be determined***
43	Tues.	13-Aug-2002	6 PM	FEIR Topics	*To be determined*
44	Tues.	10-Sep-2002	6 PM	FEIR Topics	*To be determined*
45	Tues.	08-Oct-2002	6 PM	FEIR Topics	*To be determined*

5:45 p.m. Refreshments
6:00 p.m. Discussion
7:30 p.m. Adjourn

For CAC Members: If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

MEMORANDUM

DATE: July 11, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Tuesday, July 16, 2002

Northeastern University
Egan Engineering /Science Research Center
Forsyth Street (next to Ruggles Station)
Room 440 (4th Floor)

Take the stairs or elevator to the 4th floor.

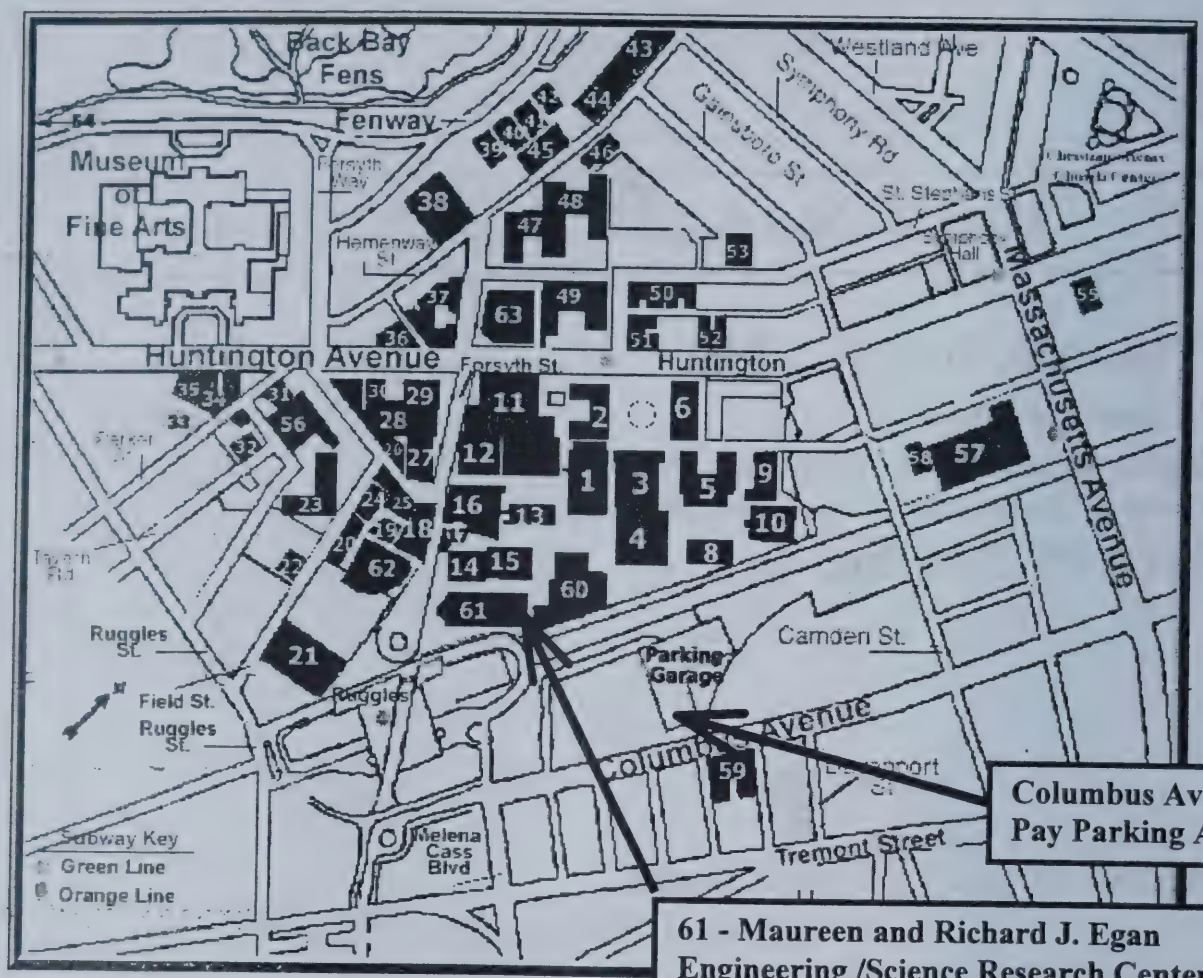
~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topic: Project Update
Discussion of Response to Draft Record of Decision

5:45 p.m. Refreshments
6:00 p.m. Discussion
7:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
Maureen and Richard J. Egan Engineering /Science Research Center
Room 440 – 4th Floor
NORTHEASTERN UNIVERSITY CAMPUS





From The Fenway (walking):
Cut through Forsyth Path and cross Hemenway Street. Follow Forsyth St. to end. Egan Center is on left just before Ruggles Station.

From Green Line (E Train):
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Egan Center is next to Ruggles Station.

Emerald Necklace Citizen's Advisory Committee

Northeastern University - Egan Engineering/Science Research Center

Room 440 (4th Floor)

Tuesday, July 16, 2002
6:00p.m. - 7:30p.m

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:10

***Kirk Fallis**, MA Office of Dispute Resolution, Facilitator*
***Karen Sontag**, MA Office of Dispute Resolution, Assistant Facilitator*

II. Brief Update: Draft Record of Decision & FEIR Scope 6:10 - 6:15

***Margaret Dyson**, Boston Parks & Recreation Dept., Dir. of Historic Parks*

III. Discussion: Proponents' Response to Draft Record of Decision 6:15 – 7:20

IV. Upcoming Monthly CAC Meetings;
Questions and Answers (General Public) Wrap Up 7:20 – 7:30

Emerald Necklace Citizens Advisory Committee

Meeting

July 16, 2002

Sign-In Sheet

Name		Affiliation	Signature
Charles Alan	Birnbaum	National Park Service	
Dudley	Bonsal	Charles River Watershed Association	Margaret Van Deusen
Kate	Bowditch	Brookline Conservation Commission	
Kelly	Brilliant	Fenway Alliance	Kelly Brilliant
Edward	Burke	Restore Olmsted's Waterway Coalition	Edward T Burke
Isabella M.	Callanan	Friends of the Muddy River	
Suzanne	Comtois	Fenway Community Development Corp	
Christine	Cooper	Jamaica Pond Project	
Edward	Cutler	Brookline Resident	
Frances Allou	Gershwin		Frances Allou Gershwin
Alan	Goodman	The Abbey Group	
George	Hagerty	Fenway Studios, Inc..	
Frances J.	Kemp	FCA, Friends of the Muddy River, Fenway Resident	
John	Leahy	Northeastern MPA Student	
Arleyn A.	Levee	National Assn. For Olmsted Parks	Arleyn A Levee

Emerald Necklace Citizens Advisory Committee

Meeting

July 16, 2002

Sign-In She

Name		Affiliation	Signature
Katherine	Mathew	Boston GreenSpace Alliance	Katherine Mathew
Arlene	Mattison	Emerald Necklace Conservancy	Arlene Mattison
Hugh	Mattison	Friends of Leverett Pond	Hugh Mattison
Lauren	Meier		Lauren Meier
George	Proakis	Boston Resident	
Marion	Sabal	Fenway Garden Society	Marion Sabal
Fredericka	Veikley	Fenway Civic Association	
Eileen	Woodford	Nat'l Parks & Conservation Assoc.	

Emerald Necklace Citizens Advisory Committee

Meeting

July 16, 2002

Sign-In Sheet

\\parksmail\bospark\Muddy\CAC Meetings\CAC-42 Jul 16 2002\[CAC Sign-in July 16 2002.xls]Add'l sign-in pages

Name	Affiliation/Address	Phone	E-mail
Kirk Fallis	MDC DR	617-727-2224	Kirk.fallis@state.ma.us
Jan Sontag / Karen Sontag	MDC DR	617-727-2224	karen.sontag@state.ma.us
Kara Wilcox	Fort Point Assoc.	617-357-7044	kwilcox@fpa-inc.org
Bruce Corklin	CMM	617-452-6543	bcorklin@cdmsmith.com
Margaret Dyson	BPRD	617 635 4505	
Kate Shea Gross	CRA	617-626-1117	
Patrice Kish	DEM	617-624-1578	patrice.kish@state.ma.us
Carol Flurry	Fenway Garden Soc.	617-266-1167	15 Fuelo DR. Boston, MA 02215
Simone Auster	Emerald Necklace Conservancy		SAUSTER829@aol.com
Jan Henderson	MASCO	617 652 2762	jhenderson@masco.harvard.edu
John Burkhardt		617-635-4505 x 6517	

July 25, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

RE: Phase I Waiver, Final Record of Decision (FROD) Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Restoration Project, EOEA # 11865

Dear Secretary Durand:

The Emerald Necklace Citizens Advisory Committee (CAC) met on July 22, 2002 to review and comment upon the conditions of the Draft Record of Decision (DROD) in preparation for the release of the Final Record of Decision (FROD) by August 2, 2002. As we stated in our letter of July 19th, this meeting was scheduled to focus on finding 5f related to an "independent oversight body" identified in the April 16, 2002 DROD and discussed in subsequent correspondence with the Proponents.

First and foremost, the CAC supports the issuance of the FROD on or before August 2, 2002 so that the Charlesgate portion of the project can proceed as scheduled. However, the CAC is concerned that the "independent oversight body" be an effective and permanent part of the Emerald Necklace management structure. The CAC urges you to allow the Charlesgate portion of the project to proceed now, and recommends the following timeframes be set for resolution of outstanding issues:

- The Proponents shall meet with the CAC by September 30, 2002 to discuss the role and composition of the oversight body and the recommendations of the CAC set forth below with respect to the oversight body.
- The Proponents shall in consultation with the Secretary's proposed oversight body members and with input from the CAC, address, by November 30, 2002, how the oversight body will interact with the future management structure responsible for maintenance and management of the park system during and after completion of the project.
- The Proponents shall in consultation with the Secretary's proposed oversight body members and in consultation with the CAC, determine, by November 30, 2002:
  - the roles and responsibilities of the oversight body,
  - its membership,
  - the membership selection process,
  - the qualifications for the independent staff position,
  - the location where staff person will be housed, and;
  - the necessary funding commitment.

- The Proponents must meet with the CAC by November 30, to discuss the recommendations related to the management structure and oversight committee in advance of the completion of the FEIR.

CAC members at the July 22, 2002 meeting reached consensus on the following issues related to the independent oversight body:

Oversight Body Staff:

- The staff person for the committee should be technically competent with strong organizational skills, not just an administrator.
- The staff person should be an independent consultant, chosen by the oversight body or an executive committee of the oversight body. While the CAC believes it may be appropriate for the Emerald Necklace Conservancy to house the staff person, the CAC believes this person should answer and report to the oversight committee.
- The CAC questions if the $40,000 annually proposed by the Proponents through the duration of the project can adequately cover the cost of hiring an experienced, technically competent manager as well as providing sufficient administrative support and office space.
- The Proponents have not committed to funding the position after the completion of the project and its associated two-year warranty period. The Proponents need to address, in a timely way, issues of funding thereafter.

Oversight Body Membership:

- The CAC should have responsibility for appointing at-large community members to the new committee -- members that we believe are very important to ensure broad representation of stakeholders and the success of the oversight body.
- The CAC believes that the Proponents and the MDC should be ex-officio members of the committee.
- It will be reasonable for the independent oversight committee itself to choose additional members or organizational representatives who will bring additional expertise to the committee, but only after the community members and those designated by the Secretary are first appointed.

Oversight Body Roles and Responsibilities:

- The roles and responsibilities of the oversight body and its interactions with the Emerald Necklace Conservancy, the new management structure, EOEA, the CAC and the existing Technical Advisory Committee, need to be defined. The Proponents should provide a chart identifying how these agencies, committees and organizations will interrelate. However the roles and responsibilities are defined, the new oversight body must be independent of the Proponents.
- The CAC wants the independent oversight body to be a permanent part of the management of the park resource, even after completion of the project and the contract guarantee period. The CAC recognizes that the role of the oversight committee may change over time, particularly after the completion of the project.

- The name of the new committee should reflect its function and status. Issues brought before the independent oversight committee are likely to involve all of the goals of the project, not just environmental concerns.

Finally, the CAC urges the Proponents and the Secretary to examine the structure and functioning of the *MWRA's Water Supply Citizens Advisory Committee (WSCAC)* as a possible model for this new oversight body.

Thank you for your consideration of these issues.

Sincerely,

George J. Proakis for the
Emerald Necklace Citizens Advisory Committee.

MEMORANDUM

DATE: July 18, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration

RE: **Meeting Notice**

PLEASE NOTE NEW! MEETING LOCATION!

Monday, July 22, 2002

Northeastern University

West Village, Building A Tower

13th floor Conference Room

It's the tallest new dormitory building on Parker Street!

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

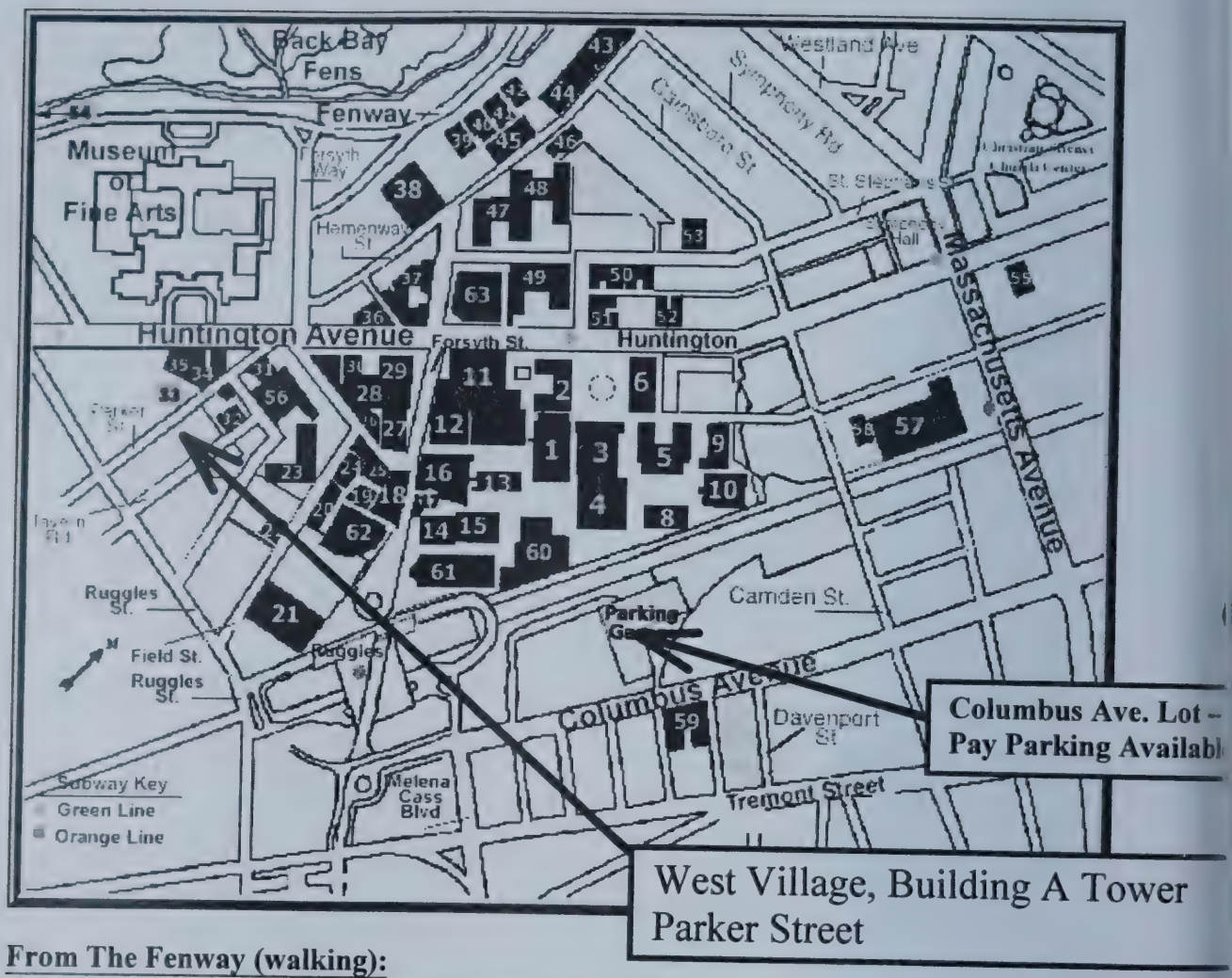
Agenda Topic: Continued Discussion of Response to Draft Record of Decision, Item 5f

6:00 p.m. Discussion
8:00 p.m. Adjourn

Due to the short notice, our host (Northeastern University) is not able to supply refreshments for this meeting.

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
West Village, Building A Tower
13th Floor Conference Room
NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):
Walk to intersection of Huntington Avenue, Forsyth Way and Parker Street (Museum of Fine Arts and Punters Pub are on the corner). Walk down Parker Street just past the construction site. It's the tallest high-rise dorm on the left on Parker Street.

From Green Line (E Train):
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From the Orange Line:
Exist at Ruggles Station on the Forsyth Street side of the station (near the Egan Center). Walk through Centennial Park towards the recently-constructed, new high-rise dormitories at West Campus. Tower A is the tallest of the new dormitories and is located on Parker St.

Emerald Necklace Citizen's Advisory Committee

Northeastern University - West Village, Building A Tower

13th Floor Conference Room

Monday, July 22, 2002
6:00p.m.

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:10

***Kirk Fallis**, MA Office of Dispute Resolution, Facilitator*
***Karen Sontag**, MA Office of Dispute Resolution*
***John Burckardt**, P.E., Project Manager*

II. Presentation: ENC 6:10 - 6:25

***Simone Auster**, Emerald Necklace Conservenancy*

III. Discussion: Continued Proponents' Response to DROD 6:25 – 7:50
Item 5f

IV. Upcoming Monthly CAC Meetings;
Questions and Answers (General Public) Wrap Up 7:50 – 8:00

Emerald Necklace Citizens Advisory Committee

Meeting

July 22, 2002

Sign-In Sheet

Name		Affiliation	Signature
Charles Alan	Birnbaum	National Park Service	
~~Margaret Dudley~~	~~Van Deusen Bonsal~~	Charles River Watershed Association	Margaret Van Deusen
Kate	Bowditch	Brookline Conservation Commission	Kate Bowditch
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Edward	Burke	Restore Olmsted's Waterway Coalition	E. Burke
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Emerald Necklace Citizens Advisory Committee

Meeting

July 22, 2002

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Lauren	Meier		Lauren Meier
George	Proakis	Boston Resident	
Marion	Sabal	Fenway Garden Society	
Fredericka	Veikley	Fenway Civic Association	
Eileen	Woodford	Nat'l Parks & Conservation Assoc.	

Emerald Necklace Citizens Advisory Committee

Meeting

July 22, 2002

Sign-In Sheet

\\parksmail\bospark\Muddy\CAC Meetings\CAC-43 Jul 22 2002\[CAC Sign-in Jul 22 2002.xls]Add'l sign-in pages

Name	Affiliation/Address	Phone	E-mail
John Burckardt	Proj Mgr.	(617) 635-4505	jburckardt@ci.boston.ma.us
Kara Wilbur	Fort Point Assoc.	617 357-7044	kwilbur@fpa-inc.com
Karen Santag	MOUIR	617-625-2942	
Kirk Fallis	MODR	617-727-2224	kirk.fallis@state.ma.us
Sarah D. Cookman	Muddy R.	617 734-2741	
Kay Matheson	BSA	617 426 7980	KMatheson@greenspacealliance.org
Simone Austen	ENC	617-232-5374	
Claire Flury	Fenway garden soc.	617 266.1169	
Maureen Dyson	BPRD	617 635-4505	mdyson@ci.boston.ma.us
Thomas Brady	TOB	617-780-2088	tom_brady@town.brookline.ma.us
PATRICE KISH	DEM	617.626.1378	patrice.kish@state.ma.us
Betsy Shure Gross	ECEA	617-626-1117	

July 25, 2002

Robert Durand, Secretary
Executive Office of Environmental Affairs
251 Causeway Street
Boston, MA 02114

RE: ***Phase I Waiver, Final Record of Decision (FROD) Emerald Necklace Environmental Improvement Master Plan and Phase I Muddy River Restoration Project, EOEA # 11865***

Dear Secretary Durand:

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First and foremost, the CAC supports the issuance of the FROD on or before August 2, 2002 so that the Charlesgate portion of the project can proceed as scheduled. However, the CAC is concerned that the "independent oversight body" be an effective and permanent part of the Emerald Necklace management structure. The CAC urges you to allow the Charlesgate portion of the project to proceed now, and recommends the following timeframes be set for resolution of outstanding issues:

- The Proponents shall meet with the CAC by September 30, 2002 to discuss the role and composition of the oversight body and the recommendations of the CAC set forth below with respect to the oversight body.
- The Proponents shall in consultation with the Secretary's proposed oversight body members and with input from the CAC, address, by November 30, 2002, how the oversight body will interact with the future management structure responsible for maintenance and management of the park system during and after completion of the project.
- The Proponents shall in consultation with the Secretary's proposed oversight body members and in consultation with the CAC, determine, by November 30, 2002:
  - the roles and responsibilities of the oversight body,
  - its membership,
  - the membership selection process,
  - the qualifications for the independent staff position,
  - the location where staff person will be housed, and;
  - the necessary funding commitment.

- The Proponents must meet with the CAC by November 30, to discuss the recommendations related to the management structure and oversight committee in advance of the completion of the FEIR.

CAC members at the July 22, 2002 meeting reached consensus on the following issues related to the independent oversight body:

Oversight Body Staff:

- The staff person for the committee should be technically competent with strong organizational skills, not just an administrator.
- The staff person should be an independent consultant, chosen by the oversight body or an executive committee of the oversight body. While the CAC believes it may be appropriate for the Emerald Necklace Conservancy to house the staff person, the CAC believes this person should answer and report to the oversight committee.
- The CAC questions if the $40,000 annually proposed by the Proponents through the duration of the project can adequately cover the cost of hiring an experienced, technically competent manager as well as providing sufficient administrative support and office space.
- The Proponents have not committed to funding the position after the completion of the project and its associated two-year warranty period. The Proponents need to address, in a timely way, issues of funding thereafter.

Oversight Body Membership:

- The CAC should have responsibility for appointing at-large community members to the new committee -- members that we believe are very important to ensure broad representation of stakeholders and the success of the oversight body.
- The CAC believes that the Proponents and the MDC should be ex-officio members of the committee.
- It will be reasonable for the independent oversight committee itself to choose additional members or organizational representatives who will bring additional expertise to the committee, but only after the community members and those designated by the Secretary are first appointed.

Oversight Body Roles and Responsibilities:

- The roles and responsibilities of the oversight body and its interactions with the Emerald Necklace Conservancy, the new management structure, EOEA, the CAC and the existing Technical Advisory Committee, need to be defined. The Proponents should provide a chart identifying how these agencies, committees and organizations will interrelate. However the roles and responsibilities are defined, the new oversight body must be independent of the Proponents.
- The CAC wants the independent oversight body to be a permanent part of the management of the park resource, even after completion of the project and the contract guarantee period. The CAC recognizes that the role of the oversight committee may change over time, particularly after the completion of the project.

- The name of the new committee should reflect its function and status. Issues brought before the independent oversight committee are likely to involve all of the goals of the project, not just environmental concerns.

Finally, the CAC urges the Proponents and the Secretary to examine the structure and functioning of the *MWRA's Water Supply Citizens Advisory Committee (WSCAC)* as a possible model for this new oversight body.

Thank you for your consideration of these issues.

Sincerely,

George J. Proakis for the
Emerald Necklace Citizens Advisory Committee.

MEMORANDUM

DATE: August 8, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Tuesday August 13, 2002

Northeastern University

Egan Engineering /Science Research Center

Forsyth Street (next to Ruggles Station)

Room 240

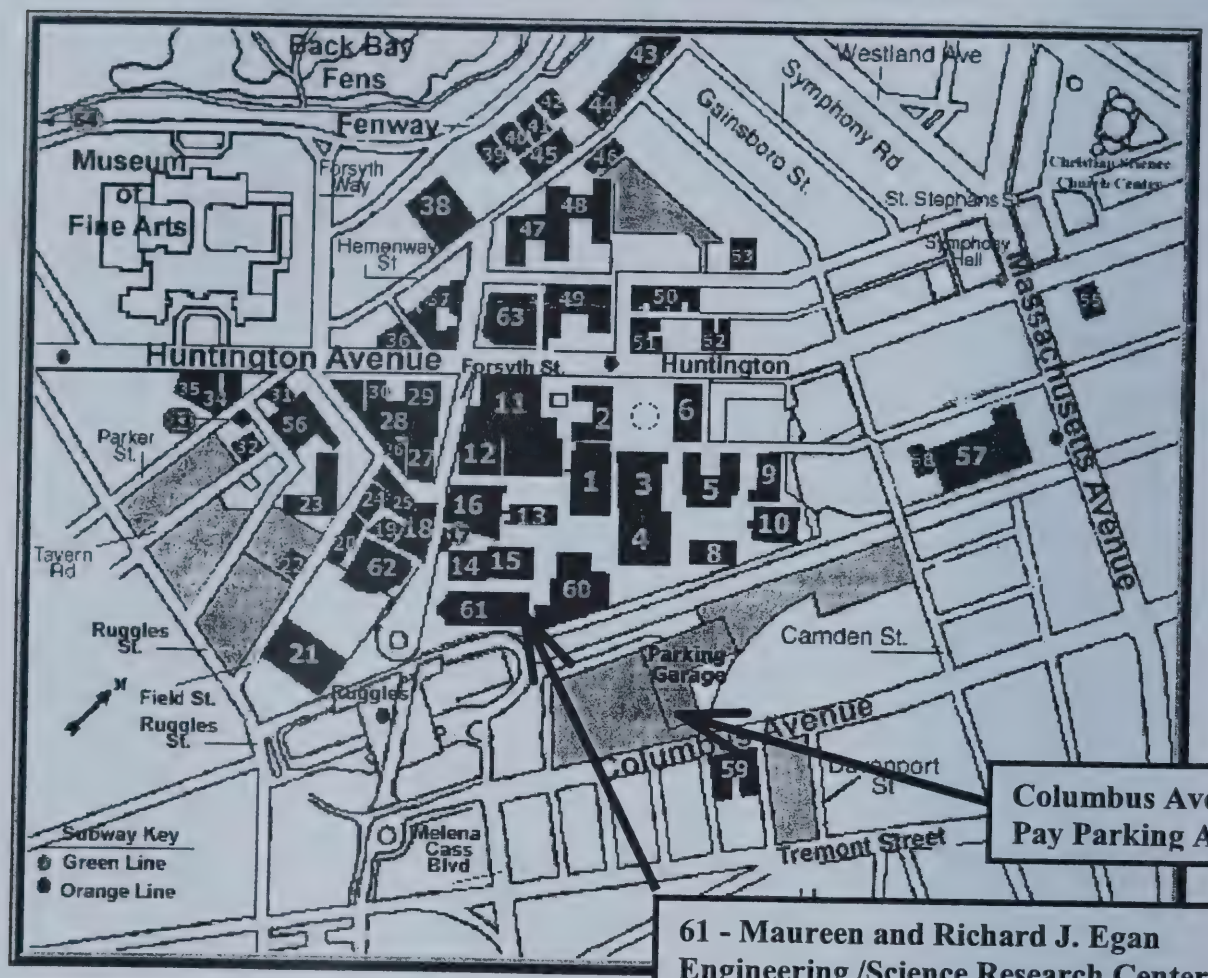
~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

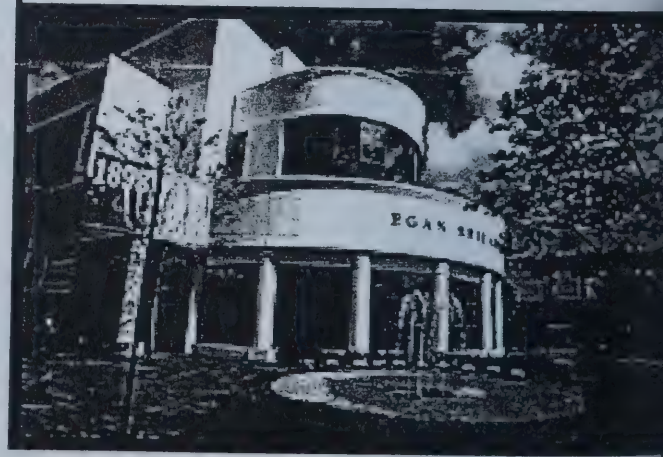
Agenda Topic: Discussion with staff person from WSCAC (MWRA's Water Supply Citizens Advisory Committee)
Overview of FEIR preparation
Upcoming CAC meetings

6:00 p.m. Refreshments
6:05 p.m. Discussion
7:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email projectmanager@muddyriverproject.org.

Directions to
Maureen and Richard J. Egan Engineering /Science Research Center
Room 240
NORTHEASTERN UNIVERSITY CAMPUS





From The Fenway (walking):
Cut through Forsyth Path and cross Hemenway Street. Follow Forsyth St. to end. Egan Center is on left just before Ruggles Station.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Left on Forsyth St. and walk to end. Egan Center is on left just before Ruggles Station.

From the Orange Line:
Egan Center is next to Ruggles Station.

Citizen's Advisory Counsel
Tentative Meeting and Work Schedule

Dated: Tuesday, August 13, 2002

The preliminary meeting dates are as follows:

Tues. 9/10

- CDM asked to move this to 9/24, but it could be used for other items

Tues. 9/24

- Management Structure -- Initial discussions
- "5f" Committee -- Ongoing discussion

Tues. 10/8 Draft sections to be sent to CAC before mtg.:

- Section 1 (Intro);
- Section 2, Wetlands
- Section 3, Water Quality Certification issues

Tues. 10/22 Draft section to be sent to CAC before mtg.:

- Section 4, Dredge/sediment control issues
- Time for carryover of other discussions

Week of 11/4 Draft sections to be sent to CAC before mtg.:

- Section 5, BMPs & Maintenance Plan
- Section 6, Alternatives/Contingency Plan

Thurs., Nov. 21 Draft sections could be sent earlier or held for this meeting:

- Section 7 -- Historic Resources [BSG says this includes Carlton St. footbridge]
- Section 8 -- mountain bike path near Back Bay Yard
- Section 9 -- rare species
- Section 10 -- response to comments on the DEIR [last times, CAC chose not to comment on this]
- Section 13 -- "Section 61 findings"

If the 5f Comm. needs to meet before 12/1, the CAC discussions on that topic need to be early enough so as to have time to schedule and convene the meeting. Therefore, these discussions should be mostly in Sept. & Oct.

Emerald Necklace Citizen's Advisory Committee

Northeastern University - Egan Center

Tuesday, August 13, 2002
6:00 – 8:30 p.m.

Agenda

I. Welcome, Opening Remarks & Comments Received 6:00 - 6:15

***Loraine DellaPorta**, MA Office of Dispute Resolution, Facilitator*
***Kirk Fallis,** MA Office of Dispute Resolution*
***John Burckardt,** P.E., Project Manager*
- ***Introduction of New Member** – Tina Oddleifson, Brookline Green Space Alliance*
- *Review of Agenda*

II. Revisiting CAC Meeting Structure/Ground Rules 6:15 – 6:30

-Participation, Proponent Attendance, Reaching Consensus, Dissemination of Info, Update Mailing/Contact list
- *Discussion: Does CAC want to consider electing Co-Chairs, Sub-Committees?*

III. Upcoming CAC Meetings 6:30-7:15

- *Review of Tasks/Deadlines*
  - *Oversight Committee (Resolution)*
  - *FEIR*
- *Proposed Meeting Schedule(Handout)*
- *Future Guest Speakers(MA Military, Central Artery, MBTA)*

IV. Guest Speaker: Rep from MWRA's Water Supply Citizen's Advisory Committee 7:15 – 8:00

V. Wrap Up/Agenda Setting/Public Q&A 8:00 – 8:30

(D R A F T)

Tasks Required by DRAFT ENVIRONMENTAL IMPACT REPORT dated April 16, 2002

Item #	Subject	DEIR Page	DEIR	Primary responsibility
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11	Maintenance and Management	8	Establish measurable environmental performance standards for sediment removal, erosion control, water quality, wetland and upland plantings, fish and benthic resources, wildlife resources, culvert maintenance, and structural source control and	CDM

			treatment control BMPs	
12	Maintenance and Management	8	Present an acceptable strategy for closing the gap between person hours needed to maintain the project area and the hours currently available	Proponents, working with the CAC
13	Maintenance and Management	9	Further negotiations with both municipalities on the appropriate level of local funding	Proponents
14	Maintenance and Management	9	Selection of a preferred management alternative	Proponents, working with the CAC
15	BMPs	10	BMP Plan for the Muddy River Watershed that identifies specific BMPs, includes a planning, permitting, and construction schedule, appropriate commitments to implement the plan, and dedicated funding sources	CDM and Proponents
16	BMPs	10	Implementation of a Pilot BMP program could yield valuable data for the basin-wide BMP analysis required by the end of calendar year 2002. I encourage the proponents to pursue this idea further.	CDM and Proponents (Street sweeping with towing program could apply here.)
17	BMPs	11	MDC enter into a MOU and play a commensurate role in the ongoing development of the Maintenance and Management Plan and the implementation of BMPs in the Muddy River watershed.	MDC
18	Historic Resources	12	more detail on measures that will be taken to protect extant historic and cultural resources within the project area during construction and beyond, including protection of plantings, structures, and other historic landscape features	Proponents, consulting with MHC
19	Carlton Street Footbridge	13	This Certificate assumes that the Town of Brookline will act in good faith to expeditiously implement the elements of the Master Plan within its control, including the rehabilitation and reopening of the Carlton Street Footbridge	Brookline (amendment of existing MOU by including schedule for restoration and funding source)
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22	Annual Updates	15	Develop format for Annual Update, including items bulleted in DEIR	Proponents
23	Comments	15	Copies of the comment letters received, and the document should address the issues raised therein. The Final EIR should present additional technical analysis and/on narrative as needed to respond to the comments received	Proponents
24	Mitigation/Section 61 Findings	15	The Final EIR should include Proposed Section 61 Findings. The Findings should identify specific mitigation measures and the parties responsible for funding and implementation, as well as a detailed implementation schedule	Proponents

Prepared by Hugh Mattison
7/29/02

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS OFFICE OF DISPUTE RESOLUTION
One Ashburton Place, Room 501
Boston, MA 02108

JANE SWIFT
Governor

SUSAN M. JEGHELIAN
Executive Director

M E M O R A N D U M

To: Emerald Necklace Citizens Advisory Committee
From: Loraine M. Della Porta, Facilitator
Date: August 20, 2002
RE: **August 13, 2002 CAC Meeting Notes & Handouts**

Enclosed please find a summary of the August 13th meeting of the Emerald Necklace CAC, as well as the following handouts:

1) Meeting Agenda
2) CAC Tentative Meeting and Work Schedule
3) List of Tasks Required by DEIR (Drafted by H. Mattison)
4) Handouts Distributed by Guest Speaker, Eileen Simonson of WSCAC
5) Copy of the Secretary's Final Record of Decision

Please note: During Eileen Simonson's presentation, she stated that the staff hired by WSCAC were not employees of the Commonwealth. Later in her presentation, she stated that the staff were considered "special employees" of the state. These statements were captured in the notes and there was some confusion as a result. I contacted Eileen to request clarification. She informed me that the members of the Advisory Committee are volunteers. The staff that the committee hires are not employees of the state, nor are they paid by the state. However, in order to comply with the Commonwealth's Conflict of Interest Laws (§268A), these employees are given a "special state employee" designation. Eileen clarified that these special employees work part-time. Hope that clears things up.----Loraine

The next meeting of the CAC will be held on the week of September 9, 2002. CAC members will be sent a notice confirming meeting date and location.

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – August 13, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Kirk Fallis, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Introduction of New Member – Tina Oddleifson, Brookline Greenspace Alliance

- Ms. Oddleifson was not present at the meeting.
- Nominations will still be accepted through MODR and forwarded to EOEA. Loraine was asked why more nominations were not accepted. She replied that EOEA felt that at this late stage of the project, it would be difficult to bring new members on board and get them up to speed. EOEA is looking to have a balance of representation and expertise in various areas.

Review of Agenda

- Guest Speaker will speak prior to the discussion of item II, Upcoming CAC meetings.

Handouts : 1) Proposed CAC Meeting & Work Schedule
2) Listing of Tasks Required by DEIR drafted by H. Mattison

Announcements

- There is a walk at the Pineback leaving from the Jamaica Plain boathouse on Tuesday at 6:30.

II Guest Speaker: Rep from MWRA's Water Supply Citizen's Advisory Committee

- Ilene Simonson, Executive Director of Water Supply Citizen's Advisory Committee (WSCAC) passed around handouts describing the organization.
- A committee was set up in 1978 under the Dukakis administration. MDC was told it had to pay for a staff person.
- There are no proponents on the committee, however there is a liaison between the MDC and the committee.
- In 1980-82, the committee expanded to a 42-member committee, although there is a core of 18 consistent members. Members of the committee are volunteers.
- Committee expenses are paid through reimbursement. Committee staff are not employees of the MWRA or the State. Members are schedule C consultants to the MWRA. Committee members are not on the WMRA pay role.
- Committee participates in the selection of consultants, collecting raw data, reviewing reports before issues, sending to its staff comments, critiques, research that the staff then helps compile into WSCAC comments.
- Committee runs by consensus. Periodically the committee issues official position papers.
- WSCAC is charged to advise the staff of the MWRA, keep the public informed, involve themselves in public law, legislation and public records and reports.
- Role of Executive Director is to interact with the other agencies. Staff informs the committee of things that are happening in other agencies.
- WSCAC is charged with informing the Secretary and the proponents. Staff is charged with getting access to raw data for WSCAC, as well as the proponents. The staff not only provides coordination for the committee, but also provides the focus for what's going on and directs discussion.
- Committee now costs MWRA $110,000, but has saved millions of dollars
- MWRA has an advisory board set up by the legislature
- MWRA can give the committee 45 days to eliminate the committee. WSCAC can also give 45 days notice to the MWRA that they are disbanding
- Committee is on 2-year contract.

- The staff of committee is hired by the committee members, with no influence from the MWRA. When new staff members are recommended, the committee tries to build consensus with the MWRA. Staff hire administrative assistant.

- The committee has independent space, funded by the MWRA.

- Membership – the MDC was never a member of the committee. WSCAC is comprised of professionals, state legislatures, private water supply consultants, community members, representative of organizations, small business and real estate representatives.

- Staff members on the committee meet regularly with staff of the MWRA. WSCAC receives information from the MWRA early on in the process.

- There are over 200 members on the WSCAC mailing list.

- The WSCAC has only been accused of not functioning independently one time. WSCAC does not discuss MWRA's budget. WSCAC discusses and supports program.

- WSCAC can spend $200 without consulting the MWRA.

- The committee has met every month except August for the last 23 years. Meet during the day in alternate locations in the Quabin region, as well as in Boston. Never meet in any building owned by the MWRA or MDC.

- Have an executive committee meeting once a month to manage the staff of the WSCAC. A progress report is prepared monthly for this meeting.

- All of the staff work part-time to ensure independence. However, staff are special employees of the state and often work full time. Need to have extremely dedicated staff.

- When WSCAC has arguments with MWRA, its recorded on tape. However, discretion is used when determining what information is disseminated.

III Revisiting CAC Meeting Structure/Ground Rules

Participation, Proponent Attendance, Reaching Consensus, Dissemination of Info, Update Mailing/Contact list

Proponents were asked to step out of the meeting. Off-record discussion among CAC members.

IV Upcoming CAC Meeting

Review of Tasks/Deadlines

- Margaret Dyson will send around information relating to other independent oversight committees that are currently in existence.
- CAC would like to read material on examples of other advisory committees prior to inviting them to present at future CAC meetings.
- CAC will have the 9/10 meeting. Will issue invitations for this meeting to other proposed members of the oversight committee.
- Bruce wanted to move the meeting back to 9/24 so that CDM would have the text on the management structure ready to distribute to the CAC.
- CAC will do their best to inform the proponents of their informational needs prior to the scheduled meetings.
- Question relating to whether CDM is drafting their chapters on the management structure in communication with the ENC. Bruce responded that the deadline will be difficult to meet if CDM has to wait for the ENC to complete their work.
- CAC requests that they receive required information prior to meetings. Proponents confirm that drafts will be distributed to CAC prior to meetings so that they can be discussed at the meetings.
- 9/24 Meeting - Consensus to move Section 1 (intro) to the Nov. 21 meeting.
- 10/22 Meeting – Request from the CAC the a discussion of the MOU is added to the schedule, with the MDC to attend the meeting. Margaret does not know at this time if this can happen, however she will ask the legal department. Betsy commented that the CAC should provide points that they would like to see included in MOU to EOEA. CAC will create this list for the 9/10 meeting.
- 10/21 Meeting – Clarification on the definition of Section 61 Findings. They are a collection of all mitigation measure identified for the project.
- Clarification – the proponent will send the CAC sections of the document as they are completed. Sections will not be held.
- Week of 11/4 meeting will be tentatively scheduled for 11/7.

- Clarification on what "resolved" means was provided by Arthur Pugsley. A notice has been distributed to all CAC members.

- Margaret commented that the proponents will work cooperatively to define the role of the 5f.

- MODR will check-in with the CAC on meeting schedule and the possibility of moving meeting times to another day.

- Margaret reminded the CAC that the FEIR needs to be submitted to Secretary by the end of January and to the CAC by the end of December. Deadline for 5f is 12/1.

- CAC requested that the proponents respond to CAC comments by highlighting or tracking the changes that were and were not made. Bruce commented that the FEIR only addressed the issues raised in the MEPA Certificate and comment letters, and therefore will be easier to track for changes.

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
George Proakis	
Ed Burke	ROW
Margaret Van Deusen	CRWA
Hugh Mattison	Friends of Leverett Pond
Arlene Mattison	Emerald Necklace Conservancy
Kate Bowditch	Brookline Conservation Comm.
Fredericka Veikley	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
Eileen Simonson	WSCAC
Loraine Della Porta	MODR
Kirk Fallis	MODR
Margaret Dyson	BPRD
Kara Wilbur	Fort Point Associates
John Burckardt	Project Manager
Bruce Conklin	CDM

Name	Affiliation
Betsy Shure Gross	EOEA
Patrice Kish	DEM
Jan Henderson	MASCO
Simone Auster	Emerald Necklace Conservancy
Claire Flury	
Karen Wepsic	

Emerald Necklace Citizen's Advisory Committee

Northeastern University - Egan Center

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Prepared by Hugh Mattison
7/29/02

WATER SUPPLY CITIZENS
ADVISORY COMMITTEE
to the Mass. Water Resources Authority

138 Russell St. (Rte. 9)
P.O. Box 478
Hadley, Massachusetts 01035
(413) 586-8861
FAX: (413) 585-9257

The Water Supply Citizens Advisory Committee (WSCAC) to the Massachusetts Water Resources Authority: Government-Supported Public Participation

♦ Originally formed in 1977 to review a proposed river diversion for water supply to the metropolitan Boston area, the Water Supply Citizens Advisory Committee (WSCAC) to the Massachusetts Water Resources Authority (MWRA) represents an unusual approach for engaging citizen participation in water resource policy decisions.

♦ WSCAC provides an ongoing source of public input for the MWRA and state agencies. The MWRA supports WSCAC with funding for office space, expenses, and a staff selected by and answerable to the committee.

♦ WSCAC's diverse membership is balanced geographically and by interest, representing source watershed communities, watershed associations, water utilities, environmental groups, business, water users, and so on.

♦ WSCAC conducts independent research and members organize into task forces devoted to more intensive study of particular issues. WSCAC has also developed its own public information materials and a network of volunteer expert consultants. The committee meets monthly in locations around the state.

♦ WSCAC advised the MWRA and the Metropolitan District Commission on water conservation and watershed protection strategies. The MWRA has implemented leak repair and demand management programs, avoiding the need for river diversion.

♦ WSCAC's current focus is water quality - source protection and management of the watersheds, reservoirs, and distribution system.

♦ WSCAC worked with the New England Safe Drinking Water Task Force on the Safe Drinking Water Act reauthorization. WSCAC helped secure passage of state legislation - the Interbasin Transfer Act of 1983, the Water Management Act of 1985, and the Watershed Protection Act of 1992. State officials have tapped WSCAC for other statewide advisory groups.

WSCAC members regard the following as the most important lessons learned:

- active citizen participation is a good investment, ensuring publicly supportable, cost effective and environmentally sound solutions;
- informed citizen input on major policy decisions requires an independent, full-time staff answerable only to the citizens committee;
- to gain credibility, citizen input must be sought from diverse sources;
- effective citizen input entails responsibilities for both the citizens' committee and the affected agencies: The citizens' committee must engage in pertinent, factual, and thoughtful criticism of the agency, and agency officials must respond receptively and professionally to input;
- citizen committees need to communicate with the public as well as with the agencies they advise.

The MWRA has achieved notable success in water conservation, and protecting supplies in an urban state presents challenges. WSCAC looks toward a continuing active role in the management of New England's largest water system.

WS
CAC
WATER SUPPLY CITIZENS
ADVISORY COMMITTEE
to the Mass. Water Resources Authority

138 Russell St. (Rte. 9
P.O. Box 478
Hadley, Massachusetts 01035
(413) 586-8861
FAX: (413) 585-9257

The Water Supply Citizens Advisory Committee (WSCAC) was created in 1978 as a volunteer committee under the Massachusetts Secretary of Environmental Affairs to provide official public comment to the Secretary in her review of the Environmental Impact Report on proposed river diversions by the Metropolitan District Commission. The Committee remained advisory to the Secretary after the Massachusetts Water Resources Authority (MWRA) was established until 1990, by which time effective demand management programs eliminated the need for supply augmentation. WSCAC's official role as a committee of the Secretary also concluded at that time. The MWRA Board of Directors then voted to retain WSCAC as advisors on all water matters.

WSCAC's diverse membership includes representatives from donor watersheds, agriculture, business, MWRA water users, environmental and planning organizations, public health professionals, water department managers, and utilities. WSCAC's staff is hired solely by the Committee, which is governed by an executive committee of six members and the WSCAC chair.

Throughout its 20-year history, WSCAC has developed positions on resources management, produced formal written comment on environmental reviews, and made programmatic recommendations to the MWRA and other relevant state, regional, and federal agencies. While WSCAC does not give direct budgetary advice to the MWRA, its philosophy, positions, and programmatic support have impacted the MWRA's capital and operating budgets.

Two decades of study and work on water supply issues have persuaded WSCAC that the Massachusetts Water Resources Authority water supply management and treatment program exemplifies correct public health priorities: A focus on watershed management, improved disinfection, and system-wide rehabilitation of infrastructure.

In 1991 and 1992, WSCAC urged the MWRA to pursue meeting the requirements of the Safe Drinking Water Act by satisfying the criteria for an unfiltered water supply system. The Committee encouraged the MDC and MWRA to capitalize on the water system's unique strengths: the nation's two largest dedicated drinking water reservoirs, and state laws that support the benefits of watershed management and source protection.

In 1992, WSCAC recommended that MWRA simultaneously design all treatment that might be required; implement a program of watershed management and operations improvements; and conduct an appropriate array of studies to determine relevant treatment and management options for this system.

WSCAC has conducted a detailed review of all studies and programs that have been implemented in this seven-year period. The results demonstrated to the Committee that MWRA is succeeding in meeting the drinking water criteria for unfiltered water supply systems.

WSCAC assiduously protects its historic mandate to provide independent comment and criticism to the agencies it advises and to the general public. The Committee believes that citizen participation and public education are essential components in resource management and allocation decisions. It is WSCAC's commitment to responsible review and development of state water policy that has given the Committee the credibility that it now possesses.

SELECTED COMMITTEE ACHIEVEMENTS:

I. Collaboration in the development and passage of Massachusetts laws, subsequent regulations and statewide water policy:

Interbasin Transfer Act - initiated 1978, passed 1983.

Water Management Act - initiated 1979, passed 1985.

MWRA Enabling Act, passed 1984.

Open Space Bond for land acquisition drinking water watersheds - passed 1987.

Watershed Protection Act - initiated 1987, passed 1992.

Massachusetts Rivers Protection Act - initiated 1993, passed 1997.

Revision to Title 5 of the Massachusetts Environmental Code (310 CMR 15.00).

Revision to Massachusetts regulations for development of designated G.L. Ch. 21E hazardous waste sites, including the protection of potentially productive aquifers.

Revision to Massachusetts Environmental Policy Act regulations.

II. Contributions to MDC/MWRA Policy and Programs:

Local water sources must be protected and unnecessary abandonment prohibited.

River diversions must be measures of last resort, following demonstration of need.

Leak detection and repair and other demand management programs must be implemented before seeking sources from outside of basin.

MWRA/MDC should utilize a "Trigger Planning" method that tracks changing demographics, provides resource accounting and efficiency measures, and guides preparation of timely future actions.

MWRA must construct a second delivery tunnel to the Metropolitan water service district.

MWRA should provide assistance to its user communities for infrastructure improvement.

MDC/MWRA should provide water supply protection including land acquisition, public education, and access control.

III. Participation in Federal Initiatives:

WSCAC was used as a model of citizen participation in the U.S. Army Corps of Engineers "National Water Management During Drought" case study (which included the MWRA water system).

Collaboration in the development and passage of the Safe Drinking Water Act (SDWA) Amendments of 1996 as a founding member of the New England Safe Drinking Water Task Force. Watershed protection was recognized in the SDWA amendments as a significant water quality determinant.

MASSACHUSETTS WATER RESOURCES AUTHORITY
Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

Telephone: (617) 242-6000
Facsimile: (617) 788-4899

July 5, 2001

NOTICE TO PROCEED

Eilleen Simonson
Water Supply Citizens Advisory Committee
138 Russell Sstreet
Hadley, MA 01035

RE: Water Supply Citizens Advisory Committee
MWRA Contract No. O079

Dear Ms. Simonson:

Reference is made to your contract, dated June 26, 2001 for the above-mentioned project. The term of this contract is effective as of July 1, 2001 to June 30, 2003.

Your work under this contract must fully comply with all applicable federal, state and local laws, rules and regulations concerning rights of access for handicapped/disabled persons.

A fully executed copy of the contract is enclosed for your files.

Sincerely

Barbie Aylward for

Kevin P. Feeley
Director of Procurement

KPF/JMB/ba

Enclosure

AGREEMENT

BETWEEN

MASSACHUSETTS WATER RESOURCES AUTHORITY

AND

WATER SUPPLY CITIZENS ADVISORY COMMITTEE

This Agreement ("Agreement") is by and between the Massachusetts Water Resources Authority ("Authority"), a body politic and corporate and a public instrumentality of the commonwealth created by Chapter 372 of the Acts of 1984 with offices at 100 First Avenue, Charlestown Navy Yard, Charlestown, Massachusetts 02109 and the Water Supply Citizens Advisory Committee ("WSCAC") an organization initially created under the Massachusetts Environmental Policy Act ("MEPA") to ensure public representation and participation in Authority water supply activities, with offices at 138 Russell Street, Hadley, Massachusetts 01035 (collectively "Parties").

WHEREAS the Authority is required to meet the water needs of its communities;

WHEREAS, the Authority desires WSCAC to continue to assist in water supply planning; and

WHEREAS, WSCAC desires to have a continued role advising the Authority;

NOW, THEREFORE, for the consideration of mutual promises contained herein, the Authority and WSCAC agree as follows:

Article 1. Effective Date.

This Agreement shall be effective from July 1, 2001 through June 30, 2003, inclusive.

Article 2. Compensation, Budget, Payment and Expenses.

2.1 The Authority shall make funds available as follows:

(a) Salaries and Duties.

(1) Director. An Executive Director shall be chosen by WSCAC members at a salary not to exceed $58,486 for the year commencing on July 1, 2001 through June 30, 2002, inclusive. The duties of the Executive Director shall be in accordance with the job

description prepared by the Executive Committee of WSCAC and on file with the Authority.

(2) Administrative Assistant. An Administrative Assistant shall be chosen by the WSCAC Executive Director in consultation with the Executive Committee of WSCAC at a salary not to exceed $18,258 for the year commencing on July 1, 2001 through June 30, 2002, inclusive. The duties of the Administrative Assistant shall be in accordance with the job description prepared by the Executive Committee of WSCAC and on file with the Authority.

(b) Annual Expenses.

The Authority shall reimburse WSCAC for the following items: 85% of the health insurance for the positions of Executive Director and Administrative Assistant, travel for WSCAC staff and members, office rent (including light and heat), office telephone, office supplies (such as letterhead, envelopes, pencils, paper clips.), postage, copy machine rental, computer services such as internet access and electronic mail, meeting room rental, general administrative and office expenses.

(c) Miscellaneous Expenses.

The Authority shall also reimburse WSCAC for the following expenses when submitted with a written reimbursement request supported by a receipt or voucher:

(1) mileage costs incurred by WSCAC staff and members from attendance at WSCAC meetings, pertinent conferences and seminars or while performing other functions directly related to its scope of services. Mileage costs will be reimbursed at the prevailing Authority rate per mile;

(2) postage, phone calls, public transportation costs, highway tolls and parking expenses incurred by WSCAC staff and members while performing WSCAC duties;

(3) the purchase or rental by WSCAC staff of books, films, cassettes, tapes, etc., if specifically approved by the Authority in advance, except that single copies of individual publications, books, and other written documents may be purchased for the WSCAC library use without prior approval, provided that the cost per item does not exceed $200. All materials purchased under this section shall be considered property of the Authority.

(4) other miscellaneous expenses of the WSCAC staff approved by the Authority on a case-by-case basis. When possible, approval of the Authority should be received in advance of incurring such expenditures.

The Authority may advance up to $750 to WSCAC, such advance to be applied to the payment of Miscellaneous Expenses as defined herein and as approved and budgeted under the terms of this Agreement. Payments made from an advance shall be accounted for in the same manner as all other Miscellaneous Expense payments. Prior to the expiration of this Agreement, any outstanding balance on an advance shall be applied against amounts due WSCAC.

The annual total reimbursement to WSCAC for annual and miscellaneous expenses combined shall not exceed $33,246 from July 1, 2001 through June 30, 2002 inclusive.

(d) 2002-2003 Salaries and Expenses.

The annual salaries and annual and miscellaneous expenses of WSCAC from July 1, 2002 through June 30, 2003 may be increased by an amount not to exceed 2.5% above all salaries and annual and miscellaneous expenses contained in this Agreement.

(e) Non-reimbursable expenses.

The following expenses are not reimbursable: meals, beverages, snacks, entertainment, room and board expenses, fines, fees, or costs assessed as a result of improper or illegal actions on the part of the member, such as parking tickets or speeding fines.

ARTICLE 3. RESPONSIBILITIES OF THE AUTHORITY AND WSCAC.

(a) The WSCAC shall employ staff to fill the positions of Director and Administrative Assistant. The WSCAC staff will be prohibited from being members of the WSCAC while serving their terms as paid employees.

(b) The WSCAC shall, whenever applicable, take all necessary steps to receive an exemption from the Massachusetts Sales and Use taxes for materials, printing and equipment purchased by the WSCAC on behalf of the Authority.

(c) The WSCAC shall submit monthly or periodic statements to the Authority requesting payment for salaries, and for annual and miscellaneous expenses listed in Article 2. Such requests shall be supplemented or accompanied by time sheets, travel and expense vouchers, and by such other supporting data as may be required by the Authority.

(d) WSCAC shall maintain accounts, records, documents, and other evidence directly pertinent to performance of work under this Agreement. The Parties and their duly authorized representatives shall have access to such records, documents, and other evidence for the purpose of inspection, audit, and copying.

(e) The Authority or its duly authorized agent, shall have the right at any and all reasonable times, to examine and audit WSCAC's records, documents and other evidence.

(f) This Agreement is subject to the laws dealing with the expenditures of public funds, including Chapter 12A of the Massachusetts General Laws.

(g) The Parties agree to consent to any reasonable modifications or changes in this contract that may be required by the Commonwealth of Massachusetts or any of its agencies.

(h) The WSCAC acknowledges that the Authority is a state agency for purpose of Chapter 268A of the General Laws (the Massachusetts Conflict of Interest Law) and understands that for the purposes of that law, WSCAC staff and members are special state employees.

ARTICLE 4. RESPONSIBILITIES OF THE WSCAC STAFF.

4.1 The WSCAC staff shall be responsible for the following tasks:

(a) aiding the WSCAC in its tasks under Article 6, managing the WSCAC office, educating the public, and acting as liaison with the Authority and its staff;

(b) preparing monthly progress reports for submission to the WSCAC Executive Committee, the WSCAC members, and the Authority;

(c) maintaining financial records, minutes of the WSCAC meetings, and other WSCAC records;

(d) assuring that at least every other meeting be held in Eastern Massachusetts at a location to be jointly agreed upon by the WSCAC and the Authority where Authority attendance is expected.

(e) providing to the Authority copies of the notices for and minutes of all meetings of the WSCAC and of all the WSCAC correspondence relative to Authority projects and proposals as soon as such materials are available.

ARTICLE 5. MEMBERSHIP

5.1

(a) Membership of the WSCAC shall maintain parity between those individuals representing the interests of the communities listed in section 8(d) of the Authority's Enabling Act, c. 372 of the Acts of 1984, ("User Representatives") and those individuals representing the interests of the watershed communities ("Donor Representatives") and those individuals representing the interests of statewide or other appropriate interests as mutually agreed upon by the WSCAC and the MWRA ("Other Representatives").

(b) In order to maintain WSCAC membership status, members must be active participants, as defined in the WSCAC by-laws.

5.2 The joint designation of WSCAC members by WSCAC and the MWRA shall have a goal of achieving at least 10% minority representation on the WSCAC.

ARTICLE 6. WSCAC TASKS.

The WSCAC shall undertake the following tasks:

6.1 Water Supply Programs Review.

Advise the Authority staff and Board relating to ongoing and proposed water supply planning and policy. Participate in the design, review and evaluation of research, reports and new ideas for programs. Provide comments, information, advice, recommendations and guidance as to the direction, intent and execution of water planning and policy.

6.2 Outreach and Education.

Assure informed public input by providing assistance in outreach to various groups regarding the Authority's water supply programs and state water resources legislation and policies. Review programs and explain plans and policies to organizations and citizens, including the scheduling of workshops, meetings and conferences. Provide comments on legislation of importance to the Authority.

6.3 Working Group Representation.

When possible, provide a representative on Authority working groups, comprising MWRA staff and consultants, related to water supply planning and policy, including the Advisory Board and its subcommittees and the Wastewater Advisory Committee.

Representation is envisioned for short-term and long-term water supply planning and policy issues.

6.4 Recommendations on Long Term Public Involvement.

Provide to the Authority staff and Board, proposals for continued effective and efficient long term public involvement in water programs.

6.5 Recommendations and Discussion Documents.

The WSCAC staff shall be responsible for providing to the Authority's staff, Board, and others, recommendation and discussion documents on water supply planning and policy. Documents may be in the form of minutes of WSCAC meetings, memoranda, letters, reports, presentations and discussions as appropriate.

ARTICLE 7. MISCELLANEOUS REQUIREMENTS.

7.1 Nondiscrimination and Equal Employment Opportunity.

(a) The WSCAC agrees to comply with all Federal and State laws pertaining to Civil Rights and Equal Opportunity, including executive orders and rules and regulations regarding employment, demotion, transfers, recruitment, layoffs or termination, rates of pay or other compensation and training, including apprenticeships. With regard to WSCAC membership, WSCAC agrees to affirmatively solicit minority representation.

(b) The WSCAC agrees to comply with the Authority's policy regarding non-discrimination and affirmative action.

ARTICLE 8. GENERAL PROVISIONS.

8.1 Termination of Contract.

(a) This Agreement may be terminated in writing, at any time, in whole or in part, by the Authority for its convenience or in the event of substantial failure by the WSCAC to fulfill their obligations, or for violation of any of the covenants and stipulations of this Agreement.

(b) If termination is effected by the Authority an equitable adjustment shall be made providing for payment to the WSCAC for services rendered and expenses incurred prior to the termination. In addition, termination settlement costs reasonably incurred by the WSCAC relating to commitments which had become firm prior to the termination shall be paid.

(c) This agreement may be terminated at any time, in whole or in part, in writing by the WSCAC in the event of substantial failure by the Authority to fulfill its obligations or for violation by the Authority to fulfill its obligations or for violation by the Authority of any of the covenants and stipulations of this agreement.

(d) No termination hereunder may be effected unless the terminating party gives the other party: (1) not less than forty-five days' written notice delivered by certified mail, return receipt requested of intent to terminate; and (2) an opportunity for consultation with the other party prior to termination, or (3) by mutual agreement of the parties.

8.2 Ownership of Property.

Upon termination of this Agreement for any reason, the WSCAC shall turn over to the Authority all materials, equipment, including computer equipment currently on loan from the Authority and owned by the Authority, unused office supplies, books, pamphlets, publications and all other properties for which Authority or MDC reimbursements were made in whole or in part, directly or indirectly.

8.3 Assignability.

The WSCAC shall not assign or transfer this Agreement or delegate its responsibility for the performance of services under this contract.

8.4 Integration Clause.

This Agreement may be amended only by a writing executed by each of the Parties.

8.6 Severability of Provisions.

If any provision of this Agreement shall, to any extent, be held invalid or unenforceable, the remainder of this Agreement shall not be deemed affected thereby.

8.7 Massachusetts Law to Govern.

All parties to this Agreement agree that this Agreement shall be governed by and enforced in accordance with the laws of the Commonwealth of Massachusetts.

8.8 Duplicate Originals.

This Agreement may be signed in more than one identical counterpart, each of which shall be deemed to be an original hereof.

8.9 Notices.

Communications shall be deemed to have been made when mailed postage prepaid or delivered to among:

Chair and
Executive Director
Water Supply Citizens Advisory Committee
P.O. Box 478
138 Russell Street
Hadley, Massachusetts 01035

Assistant Director of Public Affairs
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

Executive Director
Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

IN WITNESS WHEREOF, this Agreement is executed as of this 27th day of June, 2001.

FOR: WATER SUPPLY CITIZENS ADVISORY COMMITTEE

By: Anne B. Clemente

Title: Chair, Water Supply Citizens Advisory Committee

Dated: 6/20/01

FOR: MASSACHUSETTS WATER RESOURCES AUTHORITY

By:

Title: Executive Director

Dated: 6/26/01

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

Tel. (617) 626-1000
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http://www.magnet.state.ma.us/envir

July 29, 2002

PHASE ONE WAIVER
FINAL RECORD OF DECISION

PROJECT NAME	:Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement, and Historic Preservation Project
PROJECT MUNICIPALITY	:Boston and Brookline
PROJECT WATERSHED	:Charles River
EOEA NUMBER	:11865
PROJECT PROPONENT	:Boston Parks and Recreation Department and Town of Brookline
DATE NOTICED IN MONITOR	:February 9, 2002

As Secretary of Environmental Affairs, I have reviewed this project pursuant to the Massachusetts Environmental Policy Act (M.G.L. c.30, ss. 61-62H) and Section 11.11 of the MEPA regulations (301 CMR 11.00), and hereby **grant a Phase One Waiver** (as defined below), allowing the Charlesgate element of the project to proceed to the state permitting agencies and on to construction pending completion of the Final Environmental Impact Report (FEIR) for the entire project. This waiver includes certain conditions, explained more fully below.

Project Description

This project involves a range of physical improvements and management practices that will produce flood control, water quality improvements, habitat enhancement, landscape restoration, pedestrian and automobile circulation improvements, and building and bridge restoration along the Muddy River. The project constitutes the first phase in the long-term restoration of the entire system of Emerald Necklace parks in Boston and Brookline. This MEPA review is proceeding under a Special Review Procedure (SRP), established in a certificate dated April 29, 1999. Pursuant to the SRP Certificate, a Citizens Advisory Committee (CAC), representing a full range of interests, has been created.

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The CAC has met regularly over the past three years, and it has reviewed in detail drafts of the DEIR document. The project is also subject to a Memorandum of Understanding (MOU) executed in November 1999, by and between the Executive Office of Environmental Affairs, the Department of Environmental Management, the Massachusetts Emergency Management Agency, the Boston Water and Sewer Commission, the Town of Brookline and the City of Boston.

The project requires a variance under the Wetlands Protection Act, a 401 Water Quality Certification, a Chapter 91 License, and a Special Waste Determination from the Department of Environmental Protection (DEP), and a Section 404 permit under the Federal Clean Water Act from the U.S. Army Corps of Engineers. Because the Emerald Necklace parks are listed on the National and State Registers of Historic Places, the project is subject to review by the Massachusetts Historical Commission, the Boston Landmarks Commission, and the Brookline Preservation Commission. The project is receiving financial assistance from the Commonwealth; therefore, MEPA jurisdiction is broad in scope, extending to all aspects of the project with potential impacts on the environment.

As described in the DEIR, the project is comprised of six geographic elements: Charlesgate, the Back Bay Fens, the Riverway, and the three ponds within Olmsted Park (Leverett, Willow, and Wards Ponds). For each element, the DEIR analyzes alternative strategies (including a no-build alternative) and selects a Preferred Alternative.

Phase One Waiver Request

The SRP and ENF certificates allowed the proponent to request that the Charlesgate element of the project be allowed to proceed, provided that the environmental impacts and mitigation measures associated with the Charlesgate element were adequately described in the Draft EIR, and provided that the regulatory standards for a Phase One Waiver had been met. The waiver request was presented within the Draft EIR, and it was a subject of the comments received. As described in the Draft EIR, the Preferred Alternative for the Charlesgate element includes the removal of waterway obstructions under Ipswich Street; dredging 3,300 cubic yards (c.y.) of sediment and debris; and landscape rehabilitation.

Section 11.11 of the MEPA regulations provides that the Secretary may waive any provision or requirement of the Regulations not specifically required by MEPA, and may impose appropriate and relevant conditions or restrictions, provided that the Secretary finds that strict compliance with the provision or requirement would: (a) result in undue hardship for the proponent, unless based on delay in compliance by the proponent; and (b) not serve to avoid or minimize damage to the environment.

In the case of a partial waiver of a mandatory EIR review threshold that will allow the proponent to proceed with Phase One of the project prior to preparing an EIR, the Secretary, at a minimum, must base this finding on determinations that: (a) the potential impacts of Phase One, taken alone, are insignificant; (b) ample and unconstrained infrastructure facilities and services exist to support Phase One; (c) the project is severable, such that Phase One does not require the implementation of any other future phase of the project or restrict the means by which potential environmental impacts from any other phase of the project may be avoided, minimized or mitigated; and (d) the agency action on Phase One will contain terms such as a condition or restriction in a permit, contract or other relevant document approving or allowing the agency action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to commencement of any other phase of the project. In this context, I particularly note Section 11.01(2)(d) of the MEPA Regulations, which provides that a project shall not be phased or segmented to evade, defer, or curtail MEPA review.

Discussion

Comments received (both during the DEIR review and the review of the DROD) from CAC members and others have focused on two concerns associated with expediting the Charlesgate element in advance of the rest of the project. First, there is the concern that without an adequate commitment to BMPs and other maintenance measures, the investment in Phase One will be undermined by continued sedimentation, thus shortening the useful life of the improvements. Second, there is the concern over potential project segmentation. Although the Charlesgate element has clear value for flood control purposes, it will not in itself solve the significant flooding risks still faced by institutions and property owners upstream of the Fens. Thus, allowing

Charlesgate to proceed without adequate commitments to the implementation of basin-wide BMPs and maintenance, the timing of future phases, and the creation of an effective independent oversight entity, raises serious questions of efficiency and fairness. Accordingly, I have conditioned this FROD as set forth in Finding 5 below.

Findings

I have carefully reviewed the Draft EIR, the proponents' submittal of July 1, 2002 in response to the requirements of the DROD, and written comments received on both the DEIR and DROD (most of which support the early completion of the Charlesgate element). I am particularly appreciative of the thoughtful comments of the CAC, both collectively and by many of its individual members. Based on the foregoing, I make the following findings:

1. Provided that the conditions set out below can be satisfied, delaying the implementation of the Charlesgate element would result in an undue hardship, causing the loss of federal funds for the work, and delaying the implementation of the partial flood control benefits associated with this element.

2. The potential environmental impacts of the Charlesgate element, taken alone, are insignificant. The Charlesgate work does not independently meet any MEPA filing thresholds. The impacts are primarily short-term in nature and associated with the construction staging. The Charlesgate element involves a minimal amount of dredging, the impacts of which have been described in the Draft EIR and for which adequate mitigation can be developed during permitting. DEP has commented that the Charlesgate element appears to qualify for limited project status under the Wetlands Protection Act.

3. Construction equipment and materials may be transported on existing roadways; downstream flood storage capacity within the Charles River Basin is adequate; and upstream flood capacity will be improved through the implementation of basin-wide BMPs. Based on and subject to the foregoing, I find that ample and unconstrained infrastructure facilities and services exist to support the Charlesgate element.

4. Because construction of the Charlesgate element will not restrict the means by which potential impacts of future phases

can be avoided, I find, therefore, that the Charlesgate element is severable from the remainder of the project within the limited meaning of Section 11.11(4)(c) of the MEPA regulations. I note, however, that concerns remain over project segmentation that must be addressed in the conditions below.

5. All mitigation commitments associated with the Charlesgate element shall be incorporated into the agencies' Section 61 Findings and the associated Agency Actions (i.e., Permits or agreements concerning Financial Assistance). In addition, to ensure full compliance with MEPA, pursuant to Sections 11.01(2)(c) and 11.11(4)(d) of the MEPA Regulations, I included several conditions in the DROD. (Each of these conditions shall also be incorporated into the agencies' Section 61 Findings and other agency actions.) The proponents submitted additional information on July 1, 2002 in response to requirements of the DROD and a May 2002 follow-up letter from the Secretary.

EOEA staff have worked with the proponents, the members of the CAC, and others over the past several months to ensure that the spirit of these conditions has been met. As discussed below, much progress has been made, and I am satisfied that the proponents have met conditions 5a through 5e of the DROD. I am satisfied that enough progress has been made to allow the Phase I waiver to proceed. However, meeting condition 5f of the DROD will require more work. I have laid out the basic requirements for meeting this condition below. EOEA will continue to work with the proponents, the CAC, and others to ensure development of an appropriate structure for an independent review committee.

The requirements of the DROD were as follows:

a. Creation of a workplan and schedule for implementation and maintenance of basin-wide non-structural BMPs.
b. The Draft EIR does not include detailed discussion of maintenance issues for the Charlesgate element. The workplan needs to expand upon the Draft EIR treatment of maintenance for the Charlesgate element, and address any permitting requirements of the Metropolitan District Commission.
c. Commitment to completion of basin-wide evaluative studies for potential structural Best Management Practices (BMPs) during calendar year 2002, to ensure that the results of the studies will be fully reflected in the Final EIR.

d. To maintain the project schedule described in the Draft EIR and prevent undue segmentation, the Final EIR needs to be submitted to EOEA no later than January 31, 2003. I note that this filing condition should not be considered unreasonable or burdensome, as it is consistent with the proponents' anticipated filing timeframe as mentioned in the Draft EIR.

e. Creation of a dedicated funding source to support the levels of basin-wide BMP implementation and other maintenance measures required to prevent future degradation of the resource and the planned improvements. As suggested by the Town of Brookline, I suggest that the funding commitment be evidenced through amendment of the MOU.

f. Implementation of a management structure, through the creation of a permanent independent oversight body, representing the full range of stakeholders. This body should contain at a minimum the following members: Boston and Brookline parks agencies; Metropolitan District Commission; EOEA; DEM; Emerald Necklace CAC representatives from both communities; Boston and Brookline Greenspace Alliances; Massachusetts Historical Commission; Boston Landmarks Commission; Brookline Preservation Commission; Emerald Necklace Conservancy; Charles River Watershed Association; and Boston Society of Landscape Architects. The oversight body shall have an independent staff, funded by the proponents.

With respect to condition 5a, I find that the proponents have complied with the requirements of the DROD. I note remaining concerns over towing policy in the Fenway neighborhood, and the role of the MDC in catch basin maintenance and repair. I anticipate that the issues involving towing policy will be addressed in the Final EIR. I anticipate that issues involving MDC maintenance of catch basins will be addressed during the process of amending the 1999 MOU.

With respect to condition 5b, I find that the proponents have complied with the requirements of the DROD. I commend the proponent for the high standard developed for short-term maintenance of the Charlesgate area. I consider the standard developed as an excellent minimum standard to apply to the long-term maintenance of the Charlesgate area and other project subareas.

With respect to condition 5c, I find that the proponents have complied with the requirements of the DROD. I note the concerns raised that the study of structural BMPs is narrowly focused on particle separators. In the FEIR, the proponents should fully evaluate the effectiveness of a wide range of structural BMPs within the Muddy River watershed area. I encourage the proponents to allow DEP and other appropriate agencies review and comment on a draft of this plan prior to its submittal with the FEIR.

With respect to condition 5d, I find that the proponents have complied with the requirements of the DROD. The proponent shall submit the FEIR by January 31, 2003. I note the importance of including the CAC review of documents in the project schedule. I ask that the proponent provide individual chapters of the FEIR to the CAC for review as they become available, but with enough time for the CAC to fully review the material while meeting the filing schedule committed to by the proponent.

With respect to condition 5e, I find that the proponents have complied with the requirements of the DROD. I commend the proponents for their financial commitments to this important project.

With respect to condition 5f, I am pleased that the proponents have committed, in the July 1 letter, to the establishment of a committee that would serve as an independent oversight entity. However, the comments from the CAC and others show continuing concerns over the structure and function of the committee that must still be addressed. The resolution of these issues will be a condition of the Commonwealth's continued considerable financial assistance for the project.

Given the complexity and sensitivity of these issues, I am extending the time period by which all outstanding issues related to the management and structure of the committee must be resolved until December 1, 2002. This should allow sufficient time to resolve the issues and incorporate any appropriate commitments into the FEIR. I endorse the suggestions of the CAC as to a phased and inclusive process, including significant input from prospective committee members themselves.

I wish to clarify how the role of this committee will be distinct from those of the CAC and the Technical Advisory

Committee (TAC).[1] It will participate in the development of performance standards and identify benchmarks to identify progress; provide independent review on a periodic basis to evaluate efforts to meet the project goals, including long-term maintenance and management goals; monitor and evaluate compliance with the provisions of federal, state, and local permits and approvals (including Section 61 Findings); and promote close coordination of activities among Boston and Brookline agencies, the MDC, and the MBTA. The owners of the resources (Boston, Brookline, and the MDC) will of course continue to manage the resources under their control, with the flexibility they need to make day-to-day decisions and implement long-term management and operational policies.

I also want to highlight some of the points about committee structure and function that have emerged from the comments of the CAC and others, which I expect will serve as the basis for the forthcoming discussions:

- While the committee described in the July 1 letter has many of the members recommended in the DROD, it still lacks at-large community representatives, or representatives of local preservation organizations. I also suggest inclusion of a TAC representative, to provide further coordination among all entities. The committee should elect its own chair.
- The committee should meet often enough to ensure meaningful periodic reviews (initially, I suggest every other month), and its overall length should extend a sufficient time beyond the completion of improvements described in the FEIR (at a minimum, five years).
- The funding level and physical location for the committee staff should ensure that the committee staff has appropriate skill levels and independence from individual committee members.

Based on the above findings and subject to the above conditions, it is my judgment that the waiver request has merit, meets the tests established in 301 CMR 11.11, and will serve to advance the interests of the Massachusetts Environmental Policy

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1 The CAC, whose members represent a diverse range of backgrounds, experiences, and affilations, provides public input on the full range of environmental issues both to the proponent, as it prepares the MEPA submissions, and to EOEA, as it reviews the submissions. The TAC is the forum for addressing detailed technical issues of project permitting, design, and implementation.

Act. Therefore, I hereby grant the Phase One Waiver for the Charlesgate work subject to the aforementioned findings and conditions.

July 29, 2002
Date

Bob Durand

Comments received on the Draft EIR (continues on next page):

03/01/02 Natural Heritage and Endangered Species Program
03/07/02 Edward Cutler
03/08/02 Division of Marine Fisheries
03/21/02 Lisa Tucker-Kellogg
04/05/02 Town of Brookline Department of Public Works
04/08/02 Northeastern University
04/08/02 Medical Academic and Scientific Community Organization
04/08/02 Friends of the Muddy River
04/08/02 Frances Shedd-Fisher
04/08/02 Arleyn Levee
04/08/02 Fenway Studios, Inc.
04/08/02 Boston Greenspace Alliance
04/08/02 Emerald Necklace Citizens Advisory Committee
04/08/02 Brookline Greenspace Alliance
04/08/02 City of Boston Environment Department
04/08/02 Jeffrey Ferris
04/08/02 Charles Beveridge
04/08/02 Metropolitan District Commission
04/08/02 Charles River Watershed Association
04/08/02 The Emerald Necklace Conservancy
04/08/02 Precinct One Town Meeting Members, Town of Brookline
04/08/02 Roger Frymire
04/08/02 Department of Environmental Protection NERO
04/08/02 Department of Environmental Management
04/08/02 Town of Brookline Selectmen
04/09/02 Massachusetts Emergency Management Agency
04/09/02 U.S. Department of the Interior, National Park Service
04/09/02 Massachusetts Historical Commission
04/09/02 Town of Brookline Conservation Commission
04/09/02 Friends of the Carlton Street Footbridge
04/09/02 Town of Brookline Preservation Commission
04/09/02 Brookline Village Action Groups
04/09/02 High Street Hill Association

04/10/02 Museum of Fine Arts Boston
04/10/02 The Fenway Alliance
04/11/02 Boston Water and Sewer Commission
04/12/02 YMCA of Greater Boston
04/12/02 Massachusetts Historical Commission

Comments received on the DROD:

05/03/02 Boston Environment Department
05/21/02 Brookline Greenspace Alliance
06/10/02 friends of Leverett Pond
06/11/02 Michael Dukakis
06/11/02 Charles River Watershed Association
06/12/02 Friends of the Muddy River
06/13/02 Arleyn Levee
06/18/02 Friends of the Carleton Street Footbridge
06/18/02 High Street Hill Association
06/21/02 Boston Greenspace Alliance
07/02/02 Hugh Mattison
07/09/02 Ed Cutler
07/17/02 Edward Burke
07/18/02 Katherine Mathew
07/19/02 Emerald Necklace Citizens Advisory Committee
07/23/02 Charles River Watershed Association
07/23/02 Brookline Conservation Commission
07/23/02 Brookline Greenspace Alliance
07/23/02 The Emerald Necklace Conservancy
07/25/02 Emerald Necklace Citizens Advisory Committee

BAD/ASP/asp

MEMORANDUM

DATE: September 3, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Wednesday, September 11, 2002
Time: 6:00 pm – 8:30 pm

Brookline Police Station
350 Washington Street
Brookline, MA

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: Formation of Independent Oversight Committee
FEIR Preparation
Upcoming CAC meetings

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email projectmanager@muddyriverproject.org.

Directions

Brookline Police Station, 350 Washington Street, Brookline, MA

(617) 730-2222

Directions from the west on Route 9:

Take Rte. 9, eastbound, into Brookline. At the intersection of Rte. 9 (Boylston Street) and Cypress Street, take a left onto Cypress Street. There is a Mobil gas station and a Volkswagen dealership on the corners of this intersection. Follow Cypress Street until the next set of traffic lights. At this set of traffic lights take a right turn onto Washington Street. The Brookline Police Station is at 350 Washington Street (next door to the Brookline Municipal Court).

Directions from Boston on Beacon Street:

Take Beacon Street, westbound, into Brookline. At the intersection of Beacon Street and St. Paul Street, take a left onto St. Paul Street. There is a Holiday Inn at the corner of this intersection. Follow St. Paul Street until it ends. Take a right onto Aspinwall Avenue. Go straight through the first set of lights, intersection of Aspinwall Avenue and Harvard Street. The street changes into School Street. Follow School Street until the next set of lights, intersection of School Street and Washington Street. Take a left turn onto Washington Street. The Brookline Police station is at 350 Washington Street (next door to the Brookline Municipal Court).

Directions from the west on Beacon Street:

Take Beacon Street, eastbound, into Brookline. At the intersection of Beacon Street and Washington Street, take a right turn onto Washington Street. Follow Washington Street through one set of traffic lights. The Brookline Police station is at 350 Washington Street (next to the Brookline Municipal Court).



Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes - September 11, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Opening Remarks:

At the beginning of the meeting, the CAC took some time to remember Commissioner Justine Liff, who earlier that day, lost her battle with cancer. The CAC offered their condolences to Justine's family, friends and co-workers. Betsy Shure Gross, on behalf of herself and Secretary Bob Durand, spoke of the respect and affection they have for Commissioner Liff and of her dedication and commitment to seeing the Emerald Necklace Park System restored. Betsy asked the CAC members to honor Commissioner Liff by moving forward with their work and doing their part to make this project that Justine was so passionate about, a reality.

Review of Agenda

- Anne Fanton, Executive Director of the Central Artery Environmental Oversight Committee, will present.
- Discussion: Inviting Potential Oversight Committee Members to next meeting
- FEIR preparation - Meeting Schedule and Review Methodology

II Guest Speaker, Anne Fanton, Chair, Central Artery Environmental Oversight Committee (EOC)

Note: The CAC members forwarded Ms. Fanton questions they had about her work with the Central Artery EOC. Her responses were as follows:

- Q: How did committee get started, composition of the committee, what is the committee?

- A: EOC was formed bottom up. In 1991, three organizations, including the Boston Greenspace Alliance, Friends of Massachusetts and Move Massachusetts signed an MOU with the Secretary of Transportation and the Secretary of Environmental Affairs during the beginning of the Weld administration. The groups agreed to form an oversight committee, plus a staff person to monitor environmental mitigation commitments.

- Part of the goal of the EOC was to limit legal challenges.

- The Secretary of EOEA also formally appointed a member of the MAPC, MBTA Advisory Board, the Bridge Design Review Committee and a representative of the Artery Business Committee.

- The proponents are not on the committee. EOC does not report to the proponents.

- Q: Does the EOC have a charter.

- A: No. However, the EOC does have a mission statement. (Distributed to CAC). Anne stated that this mission statement has not changed in all of the years she's been with the EOC and that she refers back to it often.

- Q: How was the Executive Director hired?

- A: Anne answered an advertisement in the Boston Globe. Committee members interviewed and hired her. Anne signs one-year contracts each year.

- Job description of EOC did not require a technically skilled Executive Director. They didn't want someone who had a reputation or who had a personal stake in the cause. Wanted a non-biased neutral person.

- Anne's work experience included volunteer work for Legal Women Voters, employee of the MBTA in service planning, Director of Open Land Use/Transportation and Public Involvement.

- Anne has the quality of not being sure, which she believes served as an asset when working with the community - ability to listen to people.

- Q: Budget, Salary and Staff?

- A: Office at 5 Myrtle Street, Executive Director salary is $60,000, after expenses, no benefits. Total budget is $84,000. Remaining budget goes toward graphics, copying, etc. Meetings are held at Hale and Dorr. Few

other donations. Executive Director is an independent contractor. No staff. MAPC helps to pay for some admin costs.

- All of Anne's time is spent of monitoring commitments.
- Having a supportive committee chair is extremely important, one who doesn't demand excessive progress reports.
- The Executive Director documents commitments. Artery provides EOC with commitment status report, which needs to be closely scrutinized.
- EOC holds pubic meetings on a monthly basis as a forum to air issues. Key individuals from EOEA and other public agencies attend the EOC meetings. Meetings have a planned program that highlights commitment concerns. At least half the meeting is devoted to dialogue, as well as some presentations.
- EOC is a resource, a way to get information and help to make sure that commitments are met.
- Anne recommends that the Executive Director report to the committee not to public agencies. The Executive Director should be as independent and unbiased as possible, without a personal stake in the project. The committee can have personal agendas.
- The EOC does have ex officio members. They do not attend every meeting. The EOC does not vote on issues. The commitments direct the actions of the committee.
- Q: What obstacles did Anne have to overcome?
- A: EOC had a lack of credibility. EOC looked for areas of commitments that did not already have advocates and focused efforts on those areas. As an Executive Director you have to be thick skinned – people do not usually like you. Balancing administration with research and monitoring was another challenge. Always questions relating to what are the commitments and what do they mean. Proponents and the enforcement people interpret the same commitments differently.
- As the Executive Director, Anne was told not to call the press – let them call you. Anne has sometimes found the press a useful tool.
- As long as a contract is not with the funding agencies, then maintaining independence should not be a problem.
- EOC steering committee has 6 members. Meetings are held after the monthly public meetings. Agencies on the steering committee aren't implementation agencies.
- Research is the most important function of the EOC. This includes researching regulatory documents, making phone calls.

- EOC issues a quarterly newsletter and an annual report (Some examples were distributed to CAC).

III FEIR Preparation

Announcement from John B.

Charlesgate Dredging & Riverbank Planting, Public Informational Meeting. Thursday, September 26, 2002, 6:00 PM at the Boston Public Library, Main Branch - Copley Square, 700 Boylston.

- MDC suggested that two meetings take place - first meeting: what to expect. There may be a power point presentation.

- This notice was widely distributed. Everyone who commented on the DEIR received one. It was also advertised in local papers.

Carlton Street Footbridge

- Letter from the Town of Brookline, Department of Public Works, Commissioner A. Thomas DeMaio was distributed to the CAC.

- The letter from Mr. DeMaio stated, "Town meeting requested that further cost and feasibility analyses be prepared for reconstruction, relocation and removal in order to permit a final resolution regarding the bridge structure."

- This statement concerns the CAC, as well as the assertion that the Town of Brookline is planning to delay any decision on the Carlton Street Footbridge until Spring Town Meeting, 2003.

- However, bottom line is, if the Town of Brookline votes to remove the bridge, they need to be aware that they are violating the order of EOEA.

- Selectmen approved the master plan, which included restoration of the footbridge.

- Suggestion that CAC send a letter relating to the Carlton Street Footbridge to the Secretary and copy the Selectmen of Brookline, as well as the City of Boston. The letter should reassert the conditions of the FROD.

- Another option is to send a letter to the Town of Brookline Selectmen and copy the Secretary.

- Betsy - the Secretary's Certificate clearly stated what should happen with the Carlton Street Footbridge. Restoration of the bridge is directly tied to funding. It is appropriate to ask the Secretary for clarification on an issue that is still unclear.

- Consensus was reached that in the letter to the Secretary, the CAC should outline what needs to happen and when relating to the Carlton Street Footbridge.

- Hugh Mattison will draft the letter to the Secretary and distribute it to the CAC within the coming week. CAC should send comments directly back to Hugh.

- Hugh questioned how many people need to respond in order to establish consensus.

- CAC reached consensus that letters should be signed from the CAC, with a membership list at the bottom. A suggestion was made that letterhead should contain CAC member names on the side rather than on a second page. Hugh Mattison offered to try to develop letterhead.

IV Upcoming CAC Meetings

- Betsy - A letter was sent out on August 21st, 2002, which was copied to the CAC from Assistant Secretary, Jay Wickersham, which clearly listed the commitments that need to be completed before December 1st. For some reason, CAC members did not receive this letter. MODR will distribute letter to CAC.

- Representatives from organizations that will be on the Oversight Committee will be invited to the meeting on September 25th. John B. will get a summary of whose been contacted by the proponents. John will let the CAC know by Friday, September 13th what steps have been taken or will be taken by the proponents to convene a meeting of the Oversight Committee.

- John B. - At some point the Oversight committee needs to begin to work independently of the CAC.

- CAC should be defining the agenda for the meeting. It is likely that most organizations will not have selected their representative for the Oversight Committee by September 25th. However, at the meeting, the CAC will serve as a resource for the organizations and bring people up to speed.

- CAC needs to have an organizational meeting prior to the September 25th meeting so that the CAC knows what they want to happen.

- Who is responsible for providing background information to the Oversight Committee? They need to receive a significant amount of information, including the DROD, letter from Tim Marshall, other correspondence, FROD, etc. Organizations should receive background information at least a week prior to the September meeting.

- Are the organizations aware that they were named to the Oversight Committee in the Secretary's Certificate? Betsy commented that the Certificate goes to the Proponents. However, copies of the DROD were copied to all organizations invited to sit on the Oversight Committee.

- Loraine read the list of organizations to be on the Oversight Committee as listed in the DROD. It states the oversight body should contain at a minimum the following members: Boston and Brookline parks agencies, MDC, EOEA, DEM, Emerald Necklace CAC, representatives from both communities, Boston and Brookline Greenspace Alliances, Massachusetts Historical Commission, Boston Landmarks Commission, Brookline Preservation Commission, Emerald Necklance Conservancy, Charles River Watershed Association, and Boston Society of Landscape Architects.

- At-large member of the public, the TAC, the CAC and the ENC will also have representation on the Oversight Committee.

- Proponents should take the lead on inviting Oversight Committee members to the September meeting. CAC wants to know by Friday whether the proponents will do this. John has copies of all the background information, which he thinks will be easy to send out to the Oversight Committee members.

- John commented that the CAC should decide who from the CAC will serve as members of the Oversight Committee. Loraine will send out message to all CAC members requesting that they indicate their interest in serving in this capacity.

- Arlene questioned what will happen down the road if the CAC takes issue with the new home for the Executive Director.

- CAC member commented that she wants to know how the Emerald Necklace Commission plans to house the Executive Director independently.

- A salary of $40,000 is not enough to hire an Executive Director, let alone house them.

- Betsy commented that the Oversight Committee will make the decisions on salary, location, etc. and the CAC will monitor the process. It was noted that this process should have begun last April when this requirement was made known to the proponents.

- CAC need to decide who from the CAC will join the Oversight Committee - minimum of 1 from each community. Once the CAC better gauges potential interest, they can determine whether they need to pursue the issue of whether there is a maximum number of CAC members that can join the committee. Again, Loraine will send out announcement to CAC asking for them to respond whether or not they are interested in serving on the Oversight Committee.

Upcoming CAC Meetings

Please note the changes in the following meeting schedule:

- Wednesday, September 25, 2002 – Location to be determined
- Wednesday, October 9, 2002 – Brookline Police Station
- Tuesday, October 22, 2002 – Brookline Police Station
- Wednesday, November 6, 2002 – Location to be Determined
- Thursday, November 21, 2002 – Brookline Police Station

V Wrap Up/Agenda Setting

- Arlene will write a letter to Mayor Menino on behalf of the CAC expressing sympathy for Justine Liff, and to articulate the intention of the CAC to continue her legacy through their diligent work on the Muddy River Restoration Project. Justine's family will be sent a copy.
- CAC has a potentially heavy agenda for the September 25th meeting. John B. will e-mail everyone and let them know the status of inviting potential oversight committee members to the 9/25 meeting.
- A suggestion was made that some time be dedicating to de-briefing Anne Fanton's presentation and also deciding whether the CAC would like to invite representatives from other oversight committees to future CAC meetings.
- Please e-mail Loraine with any additional agenda items.

CAC ACTION ITEMS:

1) Hugh Mattison will draft a letter to Secretary Durand informing him of the response the CAC received about the Carlton Street Footbridge and asking for his clarification of that issue. Copies will be provided to Brookline Board of Selectman and Boston. CAC should review and send comments back to Hugh ASAP.

2) MODR will distribute letter from Assistant Secretary Jay Wickersham to Commissioners Liff and DeMaio defining what "resolved" means as it relates to Section 5f of the FROD.

3) John Burckardt will check with the proponents and provide the CAC with a summary of what steps if any, have been taken to convene an initial meeting of potential Independent Oversight Committee (IOC) members. John will let CAC know by 9/13 whether the proponents will invite potential members to the 9/25 meeting.

4) The CAC needs to decide whether they want to have an interim "organizational meeting" to discuss what support/information they would like to provide to potential IOC members if they do attend the 9/25 meeting.

5) Loraine will send out notice asking CAC to indicate whether they are interested in serving on IOC.

6) Arlene Mattison will draft a letter of condolence to Mayor Menino of which a copy will be sent to Commissioner Liff's family. CAC should review and send comments back to Arlene ASAP.

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
George Proakis	
Ed Burke	ROW
Margaret Van Deusen	CRWA
Hugh Mattison	Friends of Leverett Pond
Arlene Mattison	Emerald Necklace Conservancy
Kate Bowditch	Brookline Conservation Comm.
Fredericka Veikley	Fenway Civic Association
Fran Gershwin	
Isabella Callahan	Friends of the Muddy River
Suzanne Comtois	Fenway CDC

Meeting Attendance – Non-CAC Members

Name	Affiliation
Anne Fanton	Exec Director, Central Artery EOC
Loraine Della Porta	MODR
Jeannie Adams	MODR
John Burckardt	Project Manager
Kara Wilbur	Fort Point Associates

Name	Affiliation
Betsy Shure Gross	EOEA
Simone Auster	Emerald Necklace Conservancy

August 20, 2002

Ms. Justine Liff, Commissioner
Boston Parks and Recreation Department
1010 Massachusetts Avenue
Boston, MA 02118

Mr. A. Thomas DeMaio, Commissioner,
Brookline Department of Public Works
Town Hall, 333 Washington St.
Brookline, MA 02445

Re: Emerald Necklace Environmental Improvements Master Plan and Phase I Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Preservation Project, EOEA No. 11865

Dear Commissioner Liff and Commissioner DeMaio:

The Emerald Necklace Citizens Advisory Committee (ENCAC) is working with Boston and Brookline, as the Proponents of the Emerald Necklace Environmental Improvements Master Plan, to complete its review of the Final Environmental Improvements Report Phase I (FEIR) by December 1, 2002. The ENCAC has asked the Proponents to complete their draft sections of the FEIR by mid-November so that the ENCAC can review these and provide comments to Secretary Durand in a timely manner.

There are a number of outstanding issues specified in the Draft Environmental Impact Report dated April 16, 2002 (DEIR) that require further analysis and/or clarification. We would like to establish a continuing dialog as to the progress being made on these issues, many of which are complex and will require significant effort and commitment to complete by mid-November.

One issue of concern is the schedule for the restoration of the Carlton Street Footbridge, the primary designed Brookline entrance to Riverway Park. To quote the section on the Carlton Street Footbridge in the DEIR (page 13), "This Certificate assumes that the Town of Brookline will act in good faith to expeditiously implement the elements of the Master Plan within its control, including the rehabilitation and reopening of the Carlton Street Footbridge."

To accomplish expeditious rehabilitation, decisions may require action by the Fall Brookline Town Meeting which convenes on November 12. As suggested by the DEIR, there may also need to be discussion with the Massachusetts Historic Commission on bridge rehabilitation.

The ENCAC requests that you inform us of the proposed schedule and funding sources for bridge rehabilitation by our next meeting, which will be held during the week of September 9, 2002.

Thank you for your attention.

On behalf of The Emerald Necklace Citizens Advisory Committee:

Ed Burke, ROW Coalition	Tina Oddleifson, Brookline Greenspace Alliance
Edward Cutler, PhD, Brookline Resident	George Proakis, Boston Resident
Arlene Mattison, Emerald Necklace Conservancy	Fredericka Veikley, Fenway Civic Association
Kay Mathew, Boston Greenspace Alliance	Margaret VanDeusen, Charles River Watershed Association
Hugh Mattison, Friends of Leverett Pond	

copy to:

Hon. Thomas Menino, Mayor, City of Boston	Robert Durand, Secretary, Executive Office of Environmental Affairs
Chairman Deborah Goldberg, Board of Selectmen, Town of Brookline	Arthur Pugsley, IV, Executive Office of Environmental Affairs
Rich Kelliher, Town Administrator, Brookline	Emerald Necklace Citizens Advisory Committee
Bruce Conklin, Camp, Dresser & McKee	

TOWN OF BROOKLINE
Massachusetts
DEPARTMENT OF PUBLIC WORKS

A. Thomas DeMaio
Commissioner

September 6, 2002

Emerald Necklace Citizens Advisory Committee (ENCAC)
C/O Loraine M. Della Porta, Facilitator
Massachusetts Office of Dispute Resolution
One Ashburton Place, Room 501
Boston, MA 02108

RE: CARLTON STREET FOOTBRIDGE
Status and Town Meeting Resolution

Dear Members:

I am in receipt of your letter of August 20, 2002, in which ENCAC members requested current information on the proposed schedule and funding sources for the Carlton Street Footbridge, in the context of references made to this structure in the Draft Environmental Impact Report for Phase I of the Emerald Necklace Environmental Improvements Master Plan.

As many of your membership will recall, the Carlton Street Footbridge was the subject of two Warrant Articles, one proposing removal and the other rehabilitation, submitted to this past Brookline Spring Town Meeting. At that time and in response to these opposing Articles, the Town's Board of Selectmen proposed a Resolution that was adopted by simple majority vote after formal debate.

Immediate direction on the issue of the Carlton Street Footbridge is contained in this Town Meeting Resolution, as well as subsequent parameters. In summary, due to the growing emphasis on mitigation and accessibility associated with each of the footbridge options, Town Meeting requested that further cost and feasibility analyses be prepared for reconstruction, relocation and removal in order to permit a final resolution regarding the bridge structure. Based on this anticipated study, the Selectmen were lastly requested by Town Meeting to provide an article in a FY'04 Warrant that would appropriate an initial sum for preliminary plans pursuant to an accepted option.

The Department of Public Works is bound by this Spring Town Meeting Resolution, and is, in fact, the key vehicle in the process outlined above. Specifically, the Engineering Division was directed to examine the identified cost factors and present succinct and comprehensive analyses in preparation for the 2003 Spring Town Meeting, at which FY'04 Warrant Articles will be submitted, including that which was requested of the Selectmen on the topic of the footbridge.

At this time, the Town's Engineering Division has programmed these cost evaluations in their upcoming Fall/Winter project schedule. Peter Ditto, the Division's Director, is available at (617) 730-2138 should Members have further questions.

Sincerely,

A. Thomas DeMaio
Commissioner

CC: Board of Selectmen, Brookline
Robert Durand, EOEA
Margaret Dyson, Boston Parks and Recreation Dept.

333 Washington Street • Brookline, Massachusetts 02445-6863
Telephone: (617) 730-2156 Facsimile: (617) 730-2258
http://www.townofbrooklinemass.com

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
251 Causeway Street, Suite 900
Boston, MA 02114-2119

JANE SWIFT
GOVERNOR

BOB DURAND
SECRETARY

Tel. (617) 626-1000
Fax (617) 626-1181
http://www.magnet.state.ma.us/envir

August 21, 2002

Ms. Justine Liff, Commissioner
Boston Parks and Recreation Department
1010 Massachusetts Avenue
Boston, MA 02118

Mr. Tom DeMaio, Commissioner
Brookline Public Works Department
Town Hall, 330 Washington Street
Brookline, MA 02445

Re: Phase I Final Record of Decision, Muddy River Project, EOEA #11865

Dear Commissioners Liff and DeMaio:

As you know, on July 29, 2002 the Secretary of Environmental Affairs issued a Phase I Final Record of Decision (FROD) for the Charlesgate portion of the Muddy River project, allowing the Charlesgate work to proceed to the state permitting process (and ultimately to construction) pending completion of a Final Environmental Impact Report for the project as whole.

The Secretary required the proponent to meet several conditions, discussed in greater detail in sections 5a through 5f of the FROD. One of the conditions of the Phase I waiver (and indeed of the Commonwealth's substantial financial assistance for the project as a whole) included a requirement for the formation of an independent oversight committee to serve a forum in which ongoing maintenance and management issues could be publicly discussed, to add an extra level of assurance that the Commonwealth's financial investment in the future of the Muddy River would be protected and that the improvements associated with the Muddy River project would have the maximum possible design life. Section 5f of the FROD required that several outstanding issues related to the management and structure of the committee be resolved by December 1, 2002.

This office has received several inquiries from City officials and from CAC members as to what the definition of "resolved" involves relative to the committee structure and management. To clear up any confusion, below I have listed the minimum conditions necessary

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for the Secretary to determine that the issues surrounding the committee have been "resolved" as required by the FROD (this information was previously transmitted verbally to the Boston Environment Department):

- Committee members must be identified and notified;
- The committee must have held its first meeting and elected a chairperson;
- A job description for the committee staff should be developed by the committee membership;
- Appropriate funding for the committee staff should be identified and made available;
- An appropriate site for the staff person and committee meetings must be identified.

Obviously, much work remains between now and December 1 to fulfill the Secretary's conditions. I look forward to working with you in the coming months to ensure that the proponents meet the conditions contained in the FROD. If you have any questions, feel free to contact me.

Sincerely,

Jay Wickersham
Assistant Secretary
Environmental Impact Review

JHW/ASP/asp

cc: Antonia Pollock, Boston Environment Department
Margaret Dyson, Boston Parks and Recreation Department
Erin Chute, Tom Brady, Joe Geller, Town of Brookline
Lorraine Della Porta, Massachusetts Office of Dispute Resolution
CAC members
Steve Lipman, DEP

Muddy River News

Issue no. 18 September 1, 2002

Summer is ending and we write to invite you to our September events—our mushroom walk on Saturday September 14 at 10:00 a.m., the ninth annual event of its kind, with our celebrated mycologist Dr. Milton Landowne, and on, Saturday September 28, at 11:00 a.m. our tree planting in memory of Emily Langley Lublin.

Mushrooms. As in previous years we will start out at 10 a.m. from the Longwood MBTA stop. The mushroom walk is a wonderful time to evaluate the park as well as find mushrooms and learn about them from our guide, Dr. Landowne. There is no fixed itinerary. We will keep going as long as people want and of course you can stay for as long as convenient. We will not cancel unless there is significant rain.

Tree Planting. We are looking forward to our tree planting in memory of our friend, Emily Langley Lublin who joined our group in 1996 and was very supportive of our efforts to improve the park until the time of her death in 2000. She had many friends in Brookline and elsewhere. Many of them have made memorial gifts to our organization in her memory. We proposed to the Park Director, Erin Chute, that we plant a tree in Emily's memory. The American Hornbeam tree which will be planted replaces an original of that type which grew near the Longwood bridge on the Brookline side of the river and which died recently. We believe the original which was quite beautiful was planted by F. L. Olmsted and Charles Sprague Sargent, Chair of the Brookline Park Commission, at the time our park was created. Everyone is invited to join us. We believe this is the first time a tree has been planted on the Brookline side or on either side of the Riverway to replace an original tree of the same species to perpetuate the original planting plan. The Tree Planting Committee of the Town of Brookline planted five trees in 1995, the year of the severe drought. Three of them have survived. We watered them as well as eight new trees which were planted by Boston Parks the same year, all of which have survived. New England Deaconess Hospital planted one white Dogwood tree on each side of the the river some fifteen years ago. The initial plantings did not survive but a replacement Dogwood on the Boston side near Netherlands Road is still there. We are inviting the family and friends of Emily Lublin to the ceremonial planting. Morris dancers will do a rain dance to benefit our trees. More information, telephone us at 617 734-2741.

Zoning by-law Commission. Brookline's Zoning by-law Commission has proposed two amendments to the by-law of great interest to the Muddy River community. One concerns erosion and sediment control and the second concerns stormwater runoff. Under the new bylaw the Town will require an approved

CENTRAL ARTERY
ENVIRONMENTAL
OVERSIGHT
COMMITTEE

MISSION STATEMENT

The Central Artery Environmental Oversight Committee is an independent advisory committee established to monitor progress by the Central Artery/Third Harbor Tunnel Project (CA/T), the Executive Office of Transportation and Construction (EOTC) and the Executive Office of Environmental Affairs (EOEA) toward implementing the environmental, transportation and land use mitigation commitments (the "Commitments") made by the Commonwealth in connection with the CA/T, and to encourage appropriate resolution of challenges which arise in accomplishing mitigation. The activities of the Committee shall include the following:

1. **Monitoring**: The Committee will receive and analyze relevant information concerning the CA/T mitigation commitments, including the extent to which projected schedules are consistent with the Commitments, any alterations to the schedules or the source of information will be: a) periodic reports by CA/T as to the status and prospects for successful fulfillment of each Commitment; b) prompt information to the Committee by CA/T, EOTC and EOEA, either at the initiative of those agencies or request of the Committee, with respect to any significant changes concerning the Commitments; and c) information provided by community groups, environmental advocacy organizations, or other governmental organizations; these groups will be encouraged to contact the Committee concerning perceived problems with the Commitments.

2. **Outreach**: The Committee shall solicit and maintain communications with community groups, environmental organizations and other interested parties concerning the Commitments, encouraging each to use the Committee as a clearing-house for concerns about the progress toward the Commitments or any impediments that may arise. The Committee shall endeavor to: a) inform such groups of substantial changes in the Commitments; b) help articulate any significant problems with the Commitments; and c) communicate such problems to CA/T or relevant agencies.

3. **Resolution**: Through frank discussion with CAT, EOTC, EOEA and appropriate groups, the Committee will examine any mitigation issues which it uncovers or has presented to it, and attempt to encourage an appropriate resolution of substantive problems. Although the Committee shall not determine the merits of any problem or resolution proposed by others, it shall communicate potential resolutions for both specific mitigation actions and relevant public safety to both public and private sectors.

February 25, 1992

Post Office Box 275
Boston, MA 02133
Telephone: 617-720-1150
Fax: 617-720-2290

Executive Director for the Central Artery Environmental Oversight Committee

1. **Job Description:** The job is a full-time position for a staff person to serve the independent (non-state government) members of the Central Artery Environmental Oversight Committee. Responsibilities include:

   a.) Acting as a liaison between the Committee and other mitigation committees; local, state and federal agencies; business and community groups; and others as needed.

   b.) Tracking the various environmental commitments the state has made regarding the Central Artery/Tunnel (CA/T) Project, including the nature of each commitment as well as any relevant deadlines, and keeping the Committee and other interested parties apprised of the status of each commitment.

   c.) Researching information relevant to the Project and its environmental commitments, and briefing Committee members on important findings.

   d.) Analyzing CA/T Project changes with regard to the commitments and advising the Committee as to relevant actions.

   e.) Developing recommendations for resolution of outstanding commitment issues and implementing actions as appropriate or as directed by the Committee.

   f.) Responding to requests for information and writing reports on progress with the environmental commitments.

   g.) Informing Committee members of meeting dates, times and locations, as well as various other administrative tasks related to the Committee's work, including but not limited to written and oral communications, and meeting planning and implementation.

2. **Qualifications:** This job requires a person with superior research and analytical skills. As this is a very information-intensive job, attention to detail and excellent organizational and communication skills are necessary. Some expertise in the areas of air quality and transportation is desirable, as well as an ability to work with legal and technical staff. Further, the ability to work effectively and cooperatively with others is a must. The person must be self-directed and able to work independently on a day to day basis.

Conklin, Bruce

From: Burckardt, John - Parks Dept. [JBURCKARDT@ci.boston.ma.us]
Sent: Friday, September 13, 2002 12:52 PM
Subject: Emerald Necklace CAC: upcoming meeting

Following dates were established at the recent CAC meeting on Sept. 11th:

Wed., Sept. 25	(location to be determined)
Wed. Oct. 9	Brookline Police Dept., Community Room, 350 Washington St., Brookline
Tues. Oct. 22	Brookline Police Dept., Community Room, 350 Washington St., Brookline
Wed., Nov. 6	(location to be determined)
Thurs., Nov. 21	Brookline Police Dept., Community Room, 350 Washington St., Brookline

Notices will be sent prior to each meeting.

MEMORANDUM

DATE: September 17, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Rehabilitation

RE: Meeting Notice

Wednesday, September 25, 2002

Kerr Hall,
96 The Fenway
Northeastern University Faculty Center

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

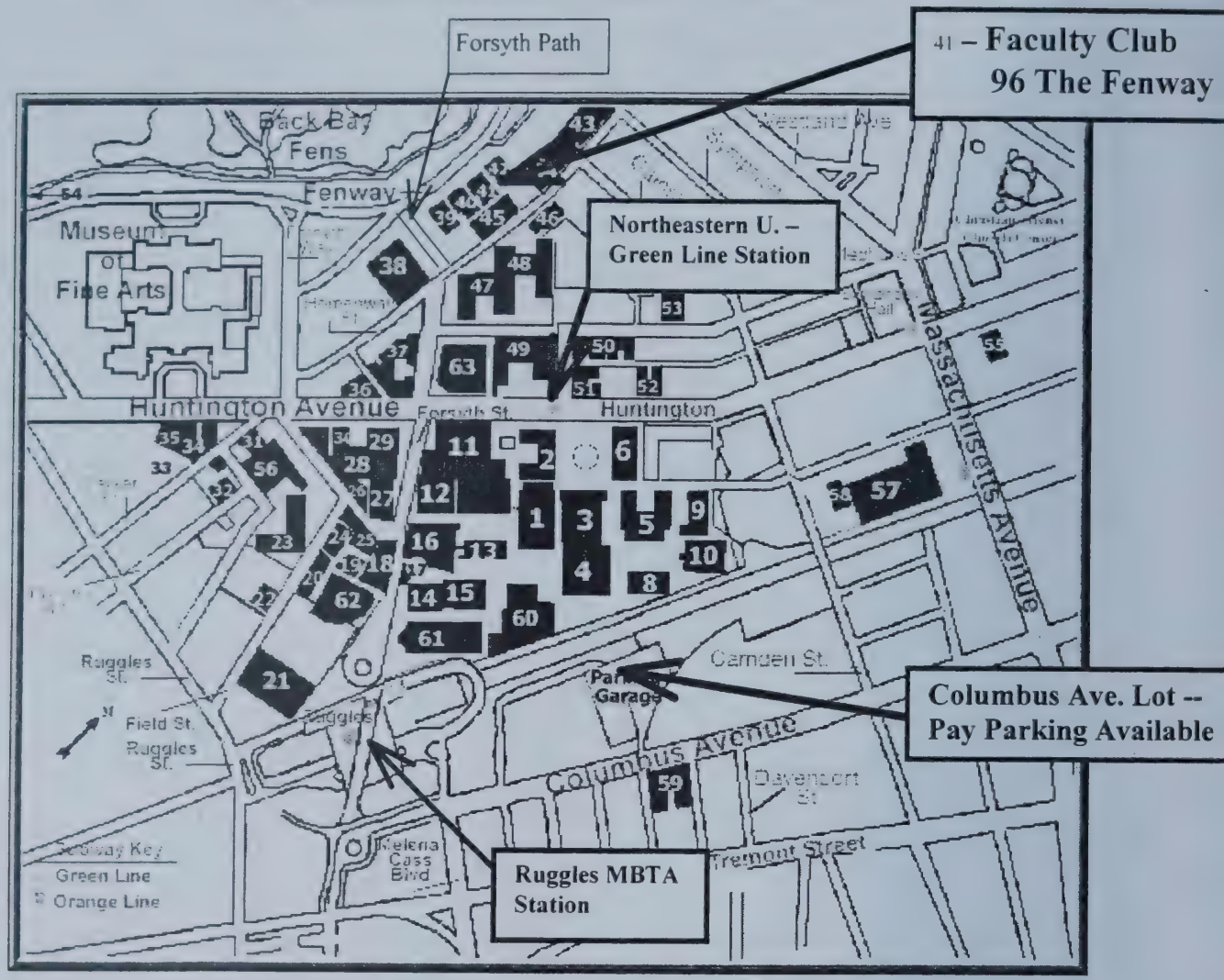
Agenda Topics: Draft of Management Structure
"5f" Committee

5:45 p.m. Refreshments
6:00 p.m. Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email jburckardt@ci.boston.ma.us.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):

The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):

Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Orange Line:

Exit at Ruggles Station. Use the Forsyth Street exit. Walk 2 blocks, cross Huntington Avenue (traffic light) and continue one more block. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Parking Garage:

Cross the tracks using the concourse through Ruggles MBTA station. Next, follow direction (above) from Ruggles Station to the Faculty Club at 96 The Fenway.

CAC Meeting Summary
September 25, 2002

I Welcome, Opening Remarks, Introductions and Updates

Review of Agenda

Questions arose why the Management Maintenance Structure chapter is presented now before the 5F Committee has had a chance to meet. It is on the agenda tonight b/c the CAC had asked that it be covered first during the FEIR.

What is the scope of Tim Marshall's work related to trees on the Parkway? Does it include assessment and needs. Parks is working out his scope now, Margaret said that she will get back to the CAC about this.

Project Update

Bruce said we have started on the FEIR, watershed evaluation and pilot program. Sampliing plan should be in place next week, it will be routed for comments before implemented.

Charlesgate dredging – public meeting tomorrow night at BPL. Last week, regulatory agencies met with contractor, CDM and project proponents to go over all permit conditions.

Contractor is on site. Erosion control stuff is being put in place. Trailer and construction fencing is in place. First phase of work is debris removal from the river. That should start next week. Dredge equipment will be on site between October 4 and 15. If all goes well, dredging will take 3-4 weeks, beginning in mid-October.

Shop drawings are under review, some have not been submitted. Waiting on stormwater submittal among others.

Plantings will take place in Spring 2003, if dredging goes well, contractor may try to get plantings in December and do sidewalk restoration in the Spring.

CRWA person asked about wq permit and if there is baseline sampling. What is in the river at the siphon to make sure that sediments don't travel into the river.

They are going to put a portable dam upstream and a filter fabric down stream and dredge within that. All of this will take place upstream of the siphon to keep all sediment and dredge contained. They will monitor at that location to make sure that the water quality requirements of the permit are met. Discharge of excess water will be contained in the Charlesgate section of the river and discharged within the dam structure.

Kate Bowditch requested copies of the contract documents and 401 water quality certification and the 404 permit to review the conditions. Bruce suggested that we provide a copy of all the permits.

Kate Bowditch or CRWA rep to email Lorraine list of documents that they want and she will take responsibility for getting the information to them.

II Overview of Management Maintenance Structure

Members of the CAC and 5F requested that they first discuss their ideas before hearing of the proponents view on the Management Maintenance Structure

After the 5F Committee discussion, Bruce then gave his presentation.

Bruce explained that this section is very different from the DEIR because we are addressing specific questions that were in the Secretary's Certificate.

Bruce explained the structure of the chapters in the FEIR, summarize what was in the DEIR, then address the specific issues raised in the Certificate.

Tim Marshall's piece relates to the maintenance component. He has not finished this yet. Bruce's presentation is on the management structure. He said that the committee needs to choose a management structure among those identified in the Secretary's Certificate.

This Chapter will report what the 5F Committee is, its composition, etc....

Bruce explained the changes since the DEIR.

Selection of a Management Structure – in the DEIR project proponent selected the Cooperative Management Structure. Bruce reviewed the proposed structure as identified in the draft chapter, figure 8-1.

Suggested that the figure 8-1 org chart be revised, show the regulatory and advisory groups above the Program Management so it more clearly shows the checks and balances so the proponents are not seen as supervising themselves.

There was question that BWSC should be broken out as a separate entity rather than being lumped in with BPW.

We need to identify who from each entity is responsible for sitting in the Program Management box to reflect that they have authority and responsibility over the agencies shown below.

Why was the structure under the Environmental Joint Powers Act rejected? Funding gets taken away from principal organizations that own the parks and give funds to the new agency to determine how the funds would be disbursed. They want us to further

explain why we did not look at the Environmental Joint Powers, what were the specific reasons for rejecting it. Under the Act, Boston and Brookline could be named as part of the governance of the agency created under the Environmental Joint Powers Act.

III Formation of 5F Committee

The 5F Committee decided that they would like to discuss what they think first before they learn what the proponents think about what the Management Maintenance Structure should be.

Introduction of Committee Members

Members were introduced then there was discussion on what other agencies or associations should be invited to participate.

Discussion/Overview of Other Models

CAC has offered to make themselves available to discuss elements of the project and what has transpired to date.

Suggestion was made to discuss the two presentations (WSCAC and CAT) on other models of review and oversight groups. Kate Bowditch would like to have the CAC talk to the 5F Committee to give them an overview of the project.

Bowditch initiated discussion by offering her input as to what the role of the 5F Committee should be. Kate said that the committee needs a paid staff person to help them fulfill their responsibilities. Proponents have agreed to some extent to provide some funding for a staff person for this committee.

After CAC members made prefatory remarks, the 5F Committee jumped into their specific issues and ideas on the maintenance management plan.

Someone said that 5F Committee should elect a chair, identify goals and objectives, job description of staff person, schedule and place of meetings, etc....

October 17 is the next oversight meeting. Committee members are going to provide bios and contact information so the committee knows who they are, what their interests are, what they have been working on in the park, etc.

The CAC meeting on October 9 is going to cover sediment and dredging. This will also give more time for the CAC determine their representation on 5F for the October 17 meeting.

CRWA person asked about the in-stream sedimentation basins and could they be kept early. Bruce said no because they are tied in with the water quality stuff. We are responding to some specific issues from regulators so having the instream basins discussed later in October is better.

Q&A

IV Next Meeting – Agenda Items

Erin Chute provided an update on the Charlton (sp?) Street Bridge. Question was asked if the analysis on the bridge can be rolled into CDM's scope. Erin to discuss this with Peter Ditto. (Bruce, I can follow up with Peter as well if you think it is a good idea.)

Election of CAC members to 5F Committee
MOU on the October 22 meeting
Tim's maintenance plan – on agenda for November meeting

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – September 25, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Susan Jeghelian, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Review of Agenda

- Questions arose as to why the Management and Maintenance Structure chapter is presented now before the 5F Committee has had a chance to discuss their ideas.
- John B. responded that it is on the agenda tonight because the CAC had asked the proponents to start the discussion in September.
- Hugh requested an update on the status of Tim Marshall's efforts.
- Margaret Dyson responded that Parks Dept. is working out his scope now, and that she will get back to the CAC about this. Tim has done a lot of research, but they need to figure out where he's going to focus his efforts.
- Hugh commented that no one was scheduled to talk about the Carlton Street Footbridge.
- Eric of Brookline responded that she will speak to the Carlton Street Footbridge issue at the appropriate time during the meeting.

II Project Update: Bruce Conklin

- Bruce gave a brief update on the status of the project.

- CDM has started on the FEIR watershed evaluation and pilot program. Sampling plan should be in place next week, and will be circulated for comments before it is implemented.

- Charlesgate dredging – public meeting will be held Thursday at 6:00 PM at the Boston Public Library. Last week, regulatory agencies met with the contractor, CDM and project proponents to go over all permit conditions.

- The contractor is on site; the trailer and construction fencing is in place. Erosion control measures are being put in place. The first phase of work is debris removal from the river, which should start next week. Dredge equipment will arrive on site between October 4 and 15. If all goes well, dredging will take 3-4 weeks, beginning in mid-October.

- Shop drawings are under review, some have not been submitted. Waiting on stormwater submittal among others.

- Plantings will take place in Spring 2003. If the dredging goes well, the contractor may try begin planting in December and do sidewalk restoration in the Spring.

- Margaret Van Deusen asked whether there is a baseline water quality protocol. What is preventing sediment from traveling into the Charles River?

- A portable dam will be put in place upstream and a filter fabric down stream and dredge within that. All of this will take place upstream of the siphon to keep all sediment and dredge material contained. The location will be monitored to make sure that the water quality requirements of the permit are met. Discharge of excess water will be contained in the Charlesgate section of the river and discharged within the dam structure.

- Kate Bowditch requested copies of the contract documents, the 401 water quality certification and the 404 permit to review the conditions.

- Anyone interested in receiving a copy of the permits or other documents related should email Loraine the list of documents that they want and she will get the information to them. (Email address is: Loraine.Dellaporta@state.ma.us)

- The contractor for the project is CRC, one of the Cashman firms.

IV Formation of 5f Committee

- Members of the CAC voted unanimously to change the meeting agenda and to first have a discussion with the "5F Committee" members present before hearing a presentation by the proponents on the Management and Maintenance Structure

Introduction of 5f Committee Members Present

- Members were introduced then there was discussion on what other agencies or associations should be invited to participate.
- Loraine read the list of agencies that were included in the FROD:
- Boston and Brookline Parks Dept., MDC, EOEA, DEM, CAC reps, Boston and Brookline Greenspace Alliances, MHC, BLC, Brookline Preservation Commission, ENC, Charles River Watershed Association, Boston Society of Landscape Architects.
- Margaret commented that there was under representation for issues of flood control, water quality, historic preservation, BMPs. Property owners are missing from the list as well. DEP representative is also absent from list.
- Erin commented that they are looking into bringing Mass Audobon Society to the table as well.
- Comment that the Aquarium has not shown much interest.

Discussion

- Loraine distributed a packet containing information from MEPA and on the presentations given by Ilene Simonson, Executive Director of WSCAC and Ann Fanton, Executive Director of the Central Oversight Committee
- Comment that it would be helpful to hear have the CAC talk to the 5F Committee to give an overview of the project.
- Kate Bowditch gave a brief overview of the CAC. Primary responsibility has been to advise the Secretary through the permitting process. There has been distrust relating to the maintenance of the park system by the proponents. CAC has worked hard to carefully review the permitting documents. The role of the 5f committee is to benefit the project by ensuring that the process is transparent. CAC invited the members of the 5f committee to the meeting so that they would understand the intentions/role of the CAC. The CAC will begin to meet less after the FEIR is completed. At that point, the 5f committee will need to be in place. This committee will have a paid staff person, that the proponents have agreed to pay for, which will allow them to work much more effectively than the CAC. The paid staff person is essential because it is not realistic to expect a board of volunteers to do the type of work required.
- Fran commented that a unifying theme of the CAC has been management and maintenance of the park system. Clarissa Rowe was hired to inform the CAC of management structures in other parts of the country and Tim

Marshall was hired to review the park system and recommend a maintenance plan.

- Arlene commented that the CAC reviewed the DEIR twice. DROD came out in April, with the condition of the 5f committee. There hasn't been much formal movement related to the formation of the 5f committee by the proponents up until now.

- Isabella expressed her concern that the CAC should continue its work in order to address the many important issues on the Muddy River, like the Carlton Street Footbridge, etc.

- Kelly commented that there is a tremendous amount of expertise and commitment on the CAC that should be linked to the 5f committee so that all of this experience and expertise is not lost.

- Question from Patrice Kish of DEM, how does the CAC envision that the two groups, the CAC and the 5f committee, will interface?

- Arlene commented that members of the CAC will sit on the 5f committee and the organizations represented by CAC members will also serve on the committee.

- Margaret commented that CAC will still meet on a regular basis, although less frequently.

- Hugh stated that the CAC will be reviewing annual updates, etc., similar to what the 5f committee will be doing and suggested that the two groups meet together occasionally.

- Kay commented that there should be a clear understanding of what role each committee will be playing.

- Betsy commented that the WSCAC and Central Artery Oversight Committee models were the best examples of oversight committees. Betsy stressed the importance of making sure issues of management and maintenance can be discussed openly and non-defensively. Also to remember that we and the community have been given an incredible gift – and that we have to keep working until we get this right.

- Kate described financing of project. The park has three entities with jurisdiction. Boston, Brookline and the MDC. This is a $100 million project. The Army Corps, the State and the towns of Boston and Brookline are all contributing financially to the project. There has been some difficulty with determining the role of the MDC.

- Kay suggested that 5f committee members look at information on Ann Fanton's presentation provided in the packet.

- Betsy commented that there was a MOU (Memorandum of Understanding) signed at the beginning of this project. She spoke of tensions that developed between funding agencies. Another concern is tying down state funds, ie. Environmental Bond Bill, Army Corps Decision Doc. Project was initially projected to cost $30 million and has since jumped to about $95 million. Boston agreed to cover 87% of the gap funding and Brookline agreed to the remaining 13%. Those who make the funding decisions need to understand the importance of the project and need to follow through will the operating budget.

- Hugh commented that Tim Marshall's report provided a complex analysis of the budget. Hugh would like to know where this stands.

- Comment – seems like CAC serves a similar function to the 5f committee. Why wouldn't the CAC transform into the 5f committee?

- Samantha Overton commented that the 5f committee is supposed to monitor the commitments. They oversee and monitor commitments, programs and progress. Also, the CAC has worked tirelessly and might want a break.

- Arlene commented that CAC worked hard on the DEIR, FEIR, etc. CAC agreed that they should continue to function, but to a lesser extent. Not all members of CAC necessarily want to continue to work on the project.

- Fran remarked that the role of the CAC under MEPA regulations is strictly to advise the Secretary under the MEPA process. Although there is a role for the CAC after the filing of the FEIR, which includes helping to ensure the financial commitments.

- Simone commented that she would like to see a flow chart, showing who reports to who, how each group is defined, what is the role of each committee, number of members, etc.

- Comment that 5f committee should take on the task of defining their role, which will evolve over time.

- Simone commented that it would be helpful to have more information about the roles of the other groups, including the TAC, CAC, etc., in order to better frame the 5f committee, without overlap.

- Arlene is concerned that the 5f committee will have only a month to meet and to perform their 5 functions. The 5f committee must have their first meeting, elect a chair-person, appropriate funding for committee staff, choose a site for the staff person, etc. Can the CAC facilitate some of the first 5f committee meetings? How can the CAC review Chapter 8 of the FEIR when the 5f committee is just starting to meet?

- Betsy commented that, once the 5f committee determines what the salary of the paid staff should be, the funds can be taken from the project money for the length of the time of the construction project.

- Arlene commented that the CAC should begin to review Chapter 8 and ask that the 5f committee meet on October 17th.

- Fran stressed that the name of the 5f committee is extremely important. Permanent independent oversight committee is the name used by the Secretary and Jay Wickersham. Management and oversight should be in the title.

- Betsy commented that it was clear that the proponents are critical members of the 5f committee, but all members are equal. Intention is that the owners and regulators will be influenced by the 5f committee.

- Erin commented that the proponents intend to meet the timeframe for the formation of the 5f committee. The proponents will do ground work prior to the initial meetings to help kick them off.

- Comment that having a staff person will help the 5f committee to work effectively. It won't harm the independence of the committee to have the proponents sitting at the table.

- Arlene questioned what the CAC should be doing before the next meeting. Independence is an important term for the 5f committee. CAC, because they didn't have a staff person, looked to the proponents for leadership. The 5f committee will have the strength to rely on their own resources.

- The proponents will be on an equal playing field on this committee.

- Erin commented that she would appreciate any input/comments on staff person job description, appropriate meeting places, etc. The proponents are charged with calling the meetings and setting the agenda.

- Comment that the CAC works so well together. It seems to really help to have state facilitator. Will the 5f Committee have that asset? BSG responded that if the 5f Committee wants that, the resources will be available. Comment was made that at least the first meeting should be facilitated by an independent party, not the proponents. Could MODR help here?

- Hugh commented that the first item on the agenda should be to elect the chair-person. Fran commented the first item on the agenda should be to discuss the agenda.

- Arlene requested that information put together by the proponents for the 5f committee be provided to the CAC.

- Loraine asked what some of the "next steps" should be in preparing for the first 5f Committee meeting.

- Ellen Lipsey commented that another early agenda item would be to do introductions.

- October 17 is the next 5f committee meeting. Committee members are going to provide bios and contact information so the committee knows who they are, what their interests are, what they have been working on in the park, etc.

- Samantha remarked that housekeeping issues should be done in advance of meeting given short time frames.

- The CAC meeting on October 9 is going to cover sediment and dredging. This will also give more time for the CAC determine their representation on 5F for the October 17 meeting.

- Proponents request to switch the agenda items for the October 9th and October 22nd meeting.

- The CAC meeting on October 9 is going to cover sediment and dredging. This will also give more time for the CAC determine their representation on 5F for the October 17 meeting.

- Kate asked if CDM would be presenting alternatives to the sedimentation basins. This will be discussed further at the October 22nd meeting.

- Erin Chute provided an update on the Carlton Street Footbridge. Question was asked if the analysis on the bridge can be rolled into CDM's scope.

- Erin said she would discuss this with Peter Ditto.

Selection of CAC Reps

- Fran commented that the CAC should choose their members for the 5f committee via e-mail.

- CAC members who are interested in siting on the 5f committee should e-mail Loraine. Additionally, CAC members who have already been named to the 5f committee in another capacity (representing an entity other than the CAC) should e-mail Loraine as well so confusion can be avoided.

- Margaret requested that CAC choose their representatives prior to the October 17th meeting.

III Overview of Management Structure (Section 8)

- After the 5F Committee discussion, Bruce then gave his presentation.

- Bruce explained that Section 8 is very different from the DEIR because we are addressing specific questions that were in the Secretary's Certificate.

- Bruce explained that the chapters in the FEIR are structured to summarize what was in the DEIR and then address the specific issues raised in the Certificate.

- Tim Marshall's piece relates to the maintenance component. He has not finished this yet. Bruce said that the 5f committee needs to choose a management structure among those identified in the Secretary's Certificate.

- Once the 5f committee has defined itself, this Chapter will updated to report on what the 5F Committee is, its composition, etc….

- Selection of a Management Structure – in the DEIR project proponent selected the Cooperative Management Structure. Bruce reviewed the proposed structure as identified in the draft Chapter 8, figure 8-1.

- Suggestion that the Figure 8-1 organizational chart be revised to show the regulatory and advisory groups above the Program Management. This would more clearly illustrate the checks and balances, so the proponents are not seen as supervising themselves.

- There was question whether the BWSC should be broken out as a separate entity rather than being lumped in with BPW.

- Comment that CDM needs to identify who from each entity is responsible for sitting in the Program Management box, to reflect that they have authority and responsibility over the agencies shown below.

- Question as to why the structure under the Environmental Joint Powers Act was rejected? This act takes funding away from principal organizations that own the parks and gives the funds to the new agency to determine how the funds would be disbursed. Why wasn't the Environmental Joint Powers given more consideration? What were the specific reasons for rejecting it? Under the Act, Boston and Brookline could be named as part of the governance of the agency created under the Environmental Joint Powers Act.

- Erin responded that there are legal concerns, time constraints, etc. relating to this structure.

- Bruce requested that written comments on Section 8 be sent to him through Loraine.

- CAC agreed to discuss Bruce's presentation at a later meeting. (Copies of Bruce's presentation will be included with summary notes)

Carlton Street Footbridge

- Concern related to the future of the Carlton Street Footbridge. Heard that $30,000 was available for bridge restoration.
- Erin commented that there were concerns at Town Meeting relating to accessibility. A consultant was hired, per town meeting vote, to evaluate the condition of the bridge. Town is looking forward to a vote to move forward with restoration.
- Arlene commented that the CAC is concerned because money for the project is contingent on the restoration of the bridge. State funding will not come if the bridge is not restored. The selectmen made the commitment in the master plan as well.
- Betsy commented that the bridge is part of the Certificate. Brookline doesn't want to get caught in the situation where they can't sign the MOU.
- Erin responded that the proponents have every intention of meeting the requirements of the Certificate.
- Question from CAC is Brookline would ever hold a special Town Meeting. Erin responded that it is a possibility.
- Arlene questioned how the CAC should communicate with the Selectmen. Erin responded that they should get on the agenda at an upcoming Selectmen meeting.

V Wrap Up/Agenda Setting

Upcoming CAC Meeting Schedule

- Wednesday, October 9, 2002- will discuss CAC reps for 5f committee
- Thursday, October 17, 2002 – 5f Committee Meeting
- Tuesday, October 22, 2002 – sedimentation basins, alternatives, MOU
- Wednesday, November 6, 2002
- Thursday, November 21, 2002 – Tim Marshall's maintenance plan

Agenda for next meeting

- Appointment of CAC members to 5f Committee

- Sedimentation & Dredging (CAC to receive info from Proponents in advance)
- Possible debriefing of Ann Fanton's presentation
- Possible discussion of electing CAC Co-Chairs.

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
Margaret VanDeusen	CRWA
Kate Bowditch	Brookline Conservation Comm
Kelly Brilliant	Fenway Alliance
Hugh Mattison	Friends of Leverett Pond
Arlene Mattison	Emerald Necklace Conservancy
Isabella M. Callahan	Friends of the Muddy River
Frances Allou Gershwin	
Frances J. Kemp	Friends of the Muddy River
Katherine Mathew	Boston Green Space Alliance
Tina Oddleifson	Brookline Green Space Alliance

Meeting Attendance – Non-CAC Members

Name	Affiliation
Simone Auster	Emerald Necklace Conservancy
Bill Nigreen	Emerald Necklace Conservancy
Jan Henderson	MASCO
Samantha Overton	MDC
Ellen Lipsey	Boston Landmarks Commission
Betsy Shure Gross	EOEA
Patrice Kish	DEM

Name	Affiliation
Toni Pollack	Environmental Department
Richard Giordano	
Claire Fleury	
Erin Shute	Brookline Parks
Margaret Dyson	Boston Parks & Rec
John Burckardt	Boston Parks
Bruce Conklin	CDM
Paul Demit	CDM

Loraine M. Della Porta	MODR
Susan M. Jeghelian	MODR
Kara Wilbur	Fort Point Associates

Camp Dresser & McKee Inc.

Muddy River Restoration Project Charlesgate Construction

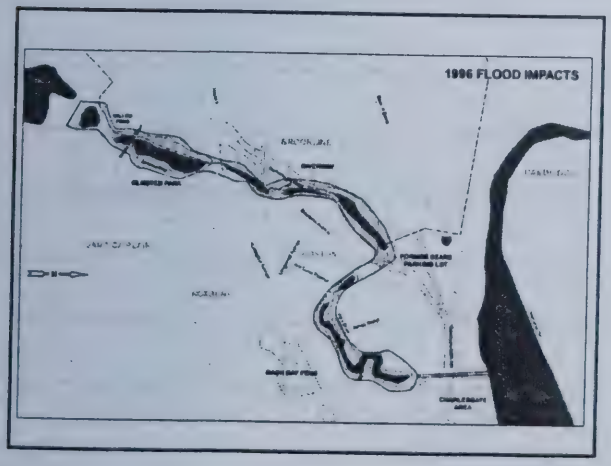
Public Information Meeting

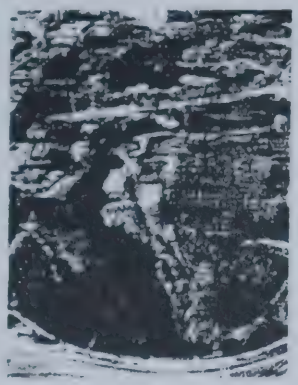
September 26, 2002

Bruce Conklin, PE, CDM
Vice President

Public Information Meeting Presentation

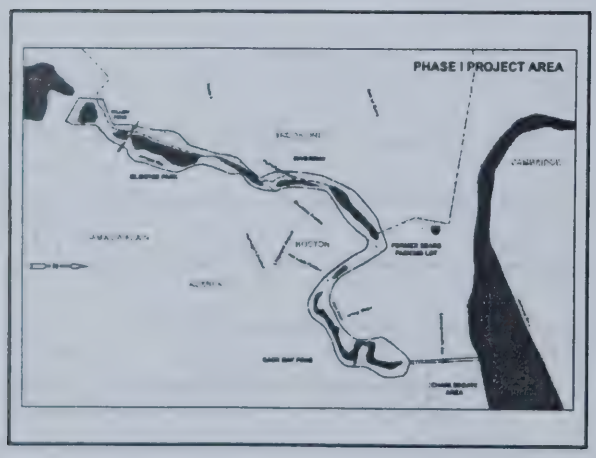
Emerald Necklace Environmental Master Plan and Phase 1 Muddy River Flood Control, Water Quality, Habitat Enhancement and Historic Rehabilitation

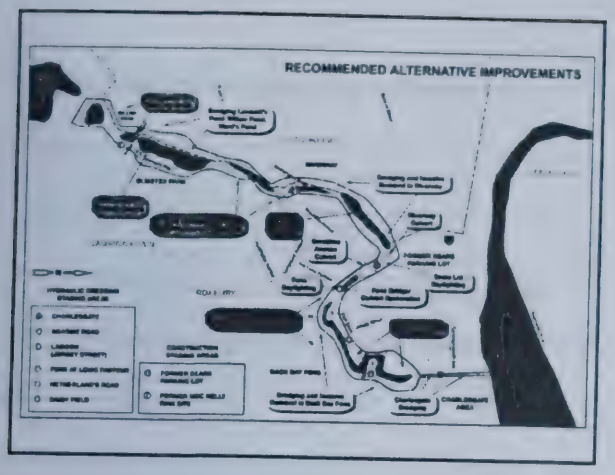




Project Objectives

- Improve water quality
- Provide flood control
- Restore landscape and historic resources
- Institute Best Management Practices (BMPs) in the Muddy River system
- Enhance aquatic/riparian habitat





Major Project Milestones

- Draft Environmental Impact Report — Dec 2001
- Charlesgate Design — Apr 2002
- Charlesgate Permitting — Sep 2002
- Final Environmental Impact Report — Jan 2003
- Construct Remaining Project Elements — 2004 -2005

Charlesgate Construction Phase

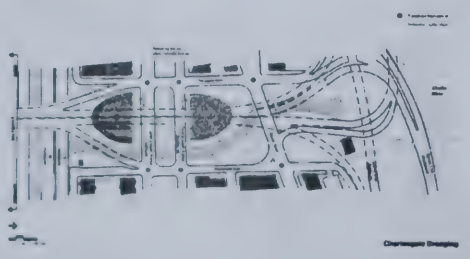
Project Stakeholders

- Boston Parks and Recreation Department (BPRD) / Town of Brookline – Proponents of project
- BPRD – Contracting agency
- Metropolitan District Commission (MDC) – Property owner

Charlesgate Dredging Phase

- Create staging areas for dredging equipment
- Removal of waterway obstructions, debris and sediment
- Rehabilitation and revegetation of the banks and construction areas

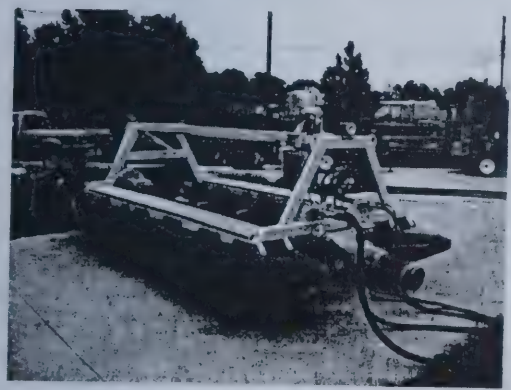
Charlesgate



Sediment Characterization Summary

- Samples collected of the fill and native material at 6 locations
- Approximately 17 samples have been collected (1 per 200 cu. yds. sediment)
- Samples were collected at 2-ft depth intervals, generally from 0 to 8 feet
- Sampling identified native strata under river
- All samples are less than DEP unlined landfill criteria







Summary of Activities

Mobilize site – remove designated trees, set up trailers, install fencing and erosion control	September 2002
Dredge Charlesgate portion of river	Oct - Dec 2002
Finish removing sediment containers	January 2003
Install plantings, repair sidewalks and staging area	Apr – Jun 2003

What to expect during construction

- Traffic – 10 to 15 trucks per day during dredge removal, less than 10 other times, normal hours 7AM to 6 PM, no holidays
- Noise – trucks, Gradeall and dredge – meets Boston Environmental Regulations for noise (equivalent to busy restaurant, 65 db to ringing alarm clock, 80 db) Heavy city traffic = 92 db.
- Odor – Maintaining water in river to prevent odors. Will have lime and odor control foam on site if odors arise.

Public Information During Construction

- Boston Parks and Recreation Department phone contact – (617) 635-4505
- Information kiosks
- Internet www.muddyriverproject.org

Restoration / Rehabilitation of Charlesgate area

- Interim restoration until future construction
- 2 year maintenance by Contractor
- Redesign of Charlesgate area
- Public participation in redesign
- Final restoration / rehabilitation

Questions and Answers

MEMORANDUM

DATE: October 3, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Wednesday, October 9, 2002
Time: 6:00 pm – 8:30 pm

Brookline Police Station
350 Washington Street
Brookline, MA

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: Appointment of CAC Members to 5f Committee (CAC Members Only)
Other 5f Committee Issues
Debriefing of Central Artery Presentation
Sedimentation & Dredging

If you are unable to attend the next meeting, please call Loraine Della Portat (617-727-2224 x21173) or email loraine.dellaporta@state.ma.us

Directions
Brookline Police Station, 350 Washington Street, Brookline, MA
(617) 730-2222

Directions from the west on Route 9:

Take Route 9 eastbound into Brookline. At the intersection of Route 9 (Boylston Street) and Cypress Street, take a left onto Cypress Street. There is a Mobil gas station and a VW dealership on the corners of this intersection. Follow Cypress Street until the next set of traffic lights. At this set of lights, take a right turn onto Washington Street. The Brookline Police Station is at 350 Washington Street (next door to the Brookline Muncipal Court).

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Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – October 9, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Announcements

- Eileen Woodford has resigned from the CAC.

II General Discussion (CAC Members Only)

III Election of CAC Members to 5f Committee (CAC Members Only)

IV Debrief of Central Artery Presentation (Anne Fanton)

- CAC agrees to forgo discussion of this agenda item.

V Recap of CAC Discussion

- In general CAC is dissatisfied with the management piece. Very little discussion of alternatives. FEIR needs a full alternative analysis, ie. public/private partnership, why only single entities looked at when there were other great examples to draw from – such as cross jurisdictional models.

- CAC also discussed the model that Clarissa Rowe had come up with. CAC hoped this model would have been presented.

- Boston Transportation Department is missing from the proponent's management model, which is integral for the street-cleaning/towing program.

- CAC is concerned that the management model is status quo and could be much more innovative and cutting edge.

- CAC would like to fit further discussion of management into the meeting when Tim Marshall's maintenance plan is scheduled.

- Question from Samantha (MDC) whether CAC was looking for a description/analysis of models that require legislation. CAC responded that they did not want to rule out those models. They want to look at everything.

- Margaret Dyson commented that the proponents will work to package up this information for the CAC.

- Loraine asked the proponents whether they can have this work done by November 21st. Proponents responded that they would try.

- Hugh recommended setting up another meeting date, in case the CAC runs out of time. No consensus was reached.

VI Review of Final FEIR Methodology

- Schedule is for a December submission of the FEIR to the CAC, with a filing deadline to MEPA in January.

- Loraine checked with CAC about timely receipt of sections. Approximately 4 CAC members didn't receive sections in mail prior to today's meeting.

- Request that CAC receive sections prior to the weekend preceding a CAC meeting and that proponents consider the option of e-mailing the sections as an attachment.

- Those CAC members who prefer sections via email should let Loraine know.

- If CAC members do not receive the sections the Monday before the meeting, they should let Loraine or John B. know.

VII Project Update, Bruce Conklin, P.E. Camp, Dresser & McKee

- Contractor has finished setting up the staging area. Dredging plan has been sent to Boston Con Com and DEP. The agencies need to accept some minor changes that were made to the specifications. Dredging will begin on the 21st. CDM has visited all the particle seporators that are supposed to be included in the pilot study. A dam is supposed to direct water into the particle separator, although the first one CDM visited was not functioning properly. That will be repaired prior to the beginning of the pilot study.

- Question from Kay - permitting signs are up, however public education signs have not been put up. Bruce will check on this.

- Hugh asked when proponents assume ownership for staging area? There is still graffiti on the other side of the abutment. If dredging is over in the Spring, does MDC assume responsibility? Bruce commented that the contractor is responsible for maintenance for 2 years. John commented that graffiti removal may not be in the contractor's scope of work. This will be checked.

VIII Review of Sedimentation & Dredging Section, Bruce Conklin, P.E.

- CDM will provide CAC with the information that has changed since the DEIR.

- A section on pre-dredge clearance removal is additional to the DEIR.

- Section 2 repeats what is in the DEIR.

- Few changes have been made to the third section.

- Under 4.5.1, staging area sampling and protection was updated. DEP was concerned about how to deal with contamination. Change since DEIR - All staging areas that will have dewatering on them will be lined with HDPD and will have a gravel working mat over the top of the liner. The staging area will also have a bermed (sp?) edge that will be pumped out to a sedimentation basin and a filter, so as to meet discharge quality requirements.

- Change since DEIR – more information on discharge limits. Will have routine water quality testing.

- If lime used for odor control it raises the Ph level.

- Margaret Van Deusen asked if there is information in the FEIR that describes what will happen in a storm? Bruce responded that the contractor has port-a-dams in two locations that are tied into an emergency water system.

- Kate asked if there is a wet weather water quality sampling plan? Bruce responded that there is base-line and weekly water quality sampling. CDM will continue sampling until the contractor is done.

- The DEIR discussed use of lime to stabilize dredge material and prevent odor. FEIR discusses this in greater detail. Contractors are required to have lime on-site to mix with dredge material to prevent odor, on a stand-by mode. Contractors will also have a foaming agent, which prevents organic material from floating into the air.

- Post water sampling – CDM had discussion with DEP about whether water needs to be sampled before being transported to a landfill. Landfills can accept dewatered material as long as the water is representative of material, based on post water sampling.

- Item 4.5.6, Characteristic Lead. Area around Victory Garden was tested and found to have lead and leaching potential. Two alternatives were presented for regulatory reasons. Preferred alternative would treat material as its loaded into a container. The containers would be trucked to the lagoon staging area. This alternative is not allowable under regulations, as you cannot move treated water off-site. However, the second alternative would be more time-consuming.

- Lead could also appear at Daisy Field.

- Hugh - will phragmites be cut between March 1st to June 15th? Bruce responded that it is unlikely.

- Hugh asked whether there is a guarantee that the staging area will have rehab and restoration for planting and seeding. Bruce commented that the contractor guarantees plantings, but there is a recommendation that the proponents take over maintenance earlier.

- Has the New England Aquarium shown any interested in a relocation program? Bruce responded that there has not been much interest on their part.

- Arlene – Kelly Rink site is recommended as a dewatering site. When would this be decided? Bruce responded that Kelly Rink would actually be used as a staging area for trucks. Parking and trailer storage, no dewatering will take place. Details for the rehabilitation of the Rink will occur later when work on that section of the project commences.

- Arlene on 4.2.2 - Is anyone developing any other system besides hay bails, as this method is often not effective. Bruce responded that hay bails are standard procedures acceptable by conservation commissions.

- Arlene on 4.2.3 – aren't all phragmites going to be removed? Unresolved permitting issues. Bruce asked if this topic could be discussed at next meeting.

- Arlene, Section 4.2.6 – Shouldn't graffiti removal be included, as well as loaming and seeding?

- Arlene - New trees will be recorded using appropriate technologies. What about new technologies? Shouldn't we be striving for management techniques and maintenance tools that we have not used before? Shouldn't this be part of the management/maintenance plan? Bruce responded that this is Tim Marshall's piece and that it will be discussed at a future meeting.

- Arlene 4.4.3 – the increase in sediment deposit in Leverett Pond is substantial at its outflow. Does this present a flooding issue? Bruce responded that the flood capacity of the pond reaches up to the banks and therefore has ample capacity.

- Kay asked how staging areas are determined and selected. Bruce responded that they looked at 11 sites and are now down to 9. DEIR describes how the sites were identified and narrowed down.

- Arlene asked who residents should talk to if the smell resulting from dredging is too strong. Bruce responded that there are signs posted around the dredging site with phone numbers to call and web site.

- Wind will also play a part in odor control.

- Kate asked about sequencing issue. Bruce responded that he'd have to go back and look. The (Army) Corps will play into this, although they haven't yet released their report. One item is alternative sequencing, which depends on funding. Kate asked is they are they still going with the bottom up model. CDM is not yet sure as it is under debate. CDM would rather do dredging bottom up. The Corps prefers to work in the alternate direction.

IV Upcoming Meetings/Agenda Setting

- Ed asked for clarification on how this review fits into the process. Clarification that this round of review is a pre-pre FEIR review.

- Thursday, October 17, 2002 – 5f Committee Meeting

- Tuesday, October 22, 2002 – Section 2, Wetlands and Section 3, Water Quality Certification issues. CDM will have sections ready to mail out as soon as possible.

- Wednesday, November 6, 2002 – Section 5, Section 6, Section 8 partial maintenance.

- Thursday, November 21, 2002 – Tim Marshall's maintenance plan, management plan.

- Hugh asked if meeting can be changed from November 21st, to November 20th. Loraine will contact CAC members regarding change of meeting date.

- Hugh recommended that Margaret write an email to the proponents outlining what the CAC wants for additional information relating to the management structure. CAC agree that a summary of the conversation should be written.

- Fran Gershwin and Ed Burke have been nominated to the oversight committee. The CAC plans to nominate more members to the committee in the near future.

Attachment 1

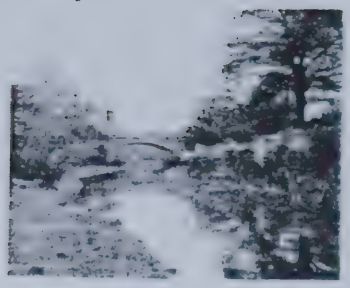
Meeting Attendance – CAC Members

Name	Affiliation
Margaret VanDeusen	CRWA
Kate Bowditch	Brookline Conservation Comm
Ed Burke	Restore Olmsted Waterway Coalition
Hugh Mattison	Friends of Leverett Pond
Arlene Mattison	Emerald Necklace Conservancy
Isabella M. Callahan	Friends of the Muddy River
Frances Allou Gershwin	Brookline Resident
Frances J. Kemp	Friends of the Muddy River
Katherine Mathew	Boston Green Space Alliance
Tina Oddleifson	Brookline Green Space Alliance
Ed Cutler	Brookline Resident
Fredericka Veikley	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
John Burckardt	Boston Parks
Bruce Conklin	CDM
Claire Fleury	Boston Resident
Samantha Overton	MDC
Maraget Dyson	Boston Parks
Betsy Shure Gross	EOEA
Erin Chute	Brookline Parks & Open Spaces

Name	Affiliation
Loraine Della Porta	MODR
Jeannie Adams	MODR
Kara Wilbur	Fort Point Associates



EMERALD NECKLACE
ENVIRONMENTAL IMPROVEMENTS MASTER PLAN
AND
PHASE I MUDDY RIVER FLOOD CONTROL, WATER QUALITY,
HABITAT ENHANCEMENT AND HISTORIC PRESERVATION
www.muddyriverproject.org

MEMORANDUM

DATE: October 4, 2002

TO: Emerald Necklace Citizens Advisory Committee

FROM: John Burckardt

RE: Review of Final Environmental Impact Report (FEIR)
Draft of Section 4: Dredging & Sediment Management

COPIES: L. Della Porta-MODR; A. Pugsle-MEPA; M. Dyson-BPRD; T. Brady- Brookline

The enclosed draft of Section 4 of the FEIR is a read-ahead copy for the discussion at the CAC meeting on October 9th.

A summary of the FEIR topics scheduled for upcoming CAC meetings in included below.

FEIR Section	CAC Meeting	Read-ahead material mailed
Section 8 (partial): Management Structure	9/25/02	9/20/02
Section 4: Dredge/Sediment Control Issues	10/9/02	10/4/02
Section 2: Wetlands, including in-stream sedimentation basins; Section 3: Water Quality Certification issues	10/22/02	
Section 5: BMPs & Maintenance Plan; Section 6: Alternatives/Contingency Plan Section 8 (partial): Maintenance Plan	11/6/02	
Section 7: Historic Resources (including Carlton St. bridge) Section 8 (partial): mountain bike path Section 9: Rare Species Section 1: Intro	11/21/02	



EMERALD NECKLACE
ENVIRONMENTAL IMPROVEMENTS MASTER PLAN
AND
PHASE I MUDDY RIVER FLOOD CONTROL, WATER QUALITY,
HABITAT ENHANCEMENT AND HISTORIC PRESERVATION
www.muddyriverproject.org

MEMORANDUM

DATE: December 9, 2002

TO: Emerald Necklace Citizens Advisory Committee

FROM: John Burckardt

RE: Review of Final Environmental Impact Report (FEIR)
Draft of Section 4: Dredging & Sediment Management

COPIES: L. Della Porta-MODR; A. Pugsley-MEPA; M. Dyson-BPRD; T. Brady- Brookline

Enclosed is draft summary of Section 9 (Rare Species) of the FEIR. This topic will be discussed at the CAC meeting on December 11, 2002.

A summary of the FEIR topics scheduled for CAC meetings in included below.

FEIR Topic (Initial date of discussion[1])	CAC Meeting Date	Date Draft FEIR Section Distributed
Section 8 (partial): Management Structure (initial discussion) ***(renumbered as Section 6)***	September 25, 2002	September 20, 2002
Section 4: Dredging and Sediment Control Issues	October 9, 2002	October 4, 2002
Section 2: Wetlands, including in-stream sedimentation basins: Section 3: Water Quality Certification issues	October 22, 2002	October 18, 2002
Section 5: BMPs & Maintenance Plan	November 6, 2002	November 4, 2002
Section 1: Introduction Section 6 (partial): Management Structure Section 7: Historic Resources (including Carlton St. Footbridge) Section 8: Back Bay Yard (dirt bike path)	November 20, 2002	November 15, 2002
Section 6 (partial): Maintenance Plan	December 4, 2002	December 2, 2002
Section 9: Rare Species	December 11, 2002	December 9, 2002

[1] Some topics have carried over for further discussion at subsequent CAC meetings.

Muddy River FEIR
Summary of Section 9 – Rare Species

9.1 Introduction

States that the only verifiable rare species in the project area is the state-threatened Threespine Stickleback, which is found in Spring Pond, its outlet stream, and a small area at the inlet of Willow Pond.

Pied-billed Grebe (an endangered bird) has been observed in the area, but MNHESP concluded that it will not be negatively impacted by the project.

9.2 MEPA Certificate and Draft EIR Comments

Summarizes MEPA and other comments related to endangered species.

9.3 Permittability of Rare Species Impacts under the Wetlands Protection Act

Describes criteria that must be met, as set forth by MNHESP, to determine that there will be no adverse impacts on the Threespine Stickleback:

- Data from previous surveys
- Survey and capture protocols
- Project timing
- Details on habitat enhancement at Willow Pond
- Post-construction monitoring plans
- Buffer zone restoration plans at Spring Pond
- Measures to control sedimentation at Spring Pond and removal of the existing sediment plume
- Plans to reduce nutrient loads to Spring and Willow Ponds

9.4 Data from Previous Surveys

Summarizes information from DEIR (results of visual observations and electro-shocking).

9.5 Overview of the Proposed Environmental Enhancement Work at Spring and Willow Ponds

Provides list of steps to be taken in protecting, mitigating and enhancing Threespine Stickleback habitat in Spring and Willow Ponds.

9.6 Details of Environmental Enhancement and Mitigation

Summarizes specific information on mitigation/enhancement of areas surrounding Spring and Willow Ponds.

9.7 Plan for Protection of Rare Species During Construction

Plan may involve capture and placement of sticklebacks in a temporary holding pool until Willow Pond dredging is complete. When construction is complete, sticklebacks will be returned to their original habitat and pool can be restored to upland or allowed to remain.

9.8 Survey and Capture Protocols

Presents steps for capturing and relocating sticklebacks including:

- Place a v-notch weir close to the outlet from Spring Pond
- Install 2 screens upstream of the weir
- Using seines and minnow traps, capture and transfer sticklebacks

9.9 Project Timing

Protection of the stickleback and its habitat must be scheduled before dredging or related construction in Willow Pond or upstream of Willow Pond in Spring Pond. Schedule capture and relocation around spawning period (spring and summer).

9.10 Environmental Monitoring and Maintenance

To be provided.

Dredging and Sediment Management
CAC Meeting – 10/9/02

1) Summary of sediment removal activities
   a) Added pre-dredge debris field clearance
2) Description of dredging in each geographic area
3) Impacts and mitigation of dredging
4) Specific dredging issues raised by DEP in comments on DEIR
   a) Staging area sampling / protection
      i) Change from DEIR to use liner with sump at all staging areas or portions of staging areas used for dewatering or handling of sediments
   b) Management of pressate
      i) Changed discharge limits based on the Water Quality Certificate
         (1) 40 mg/l SS
         (2) < 1.0 mg/l dissolved lead
         (3) >5.0 mg/l dissolved oxygen
   c) Lime stabilization available at all times in staging areas
   d) Discussion of post dewatering sampling
         (1) Data from landfill telephone calls
         (2) LSP opinion
   e) Layout for TCLP lead treatment
         (1) Option with transportation over road and one dewatering location near Victory Gardens at Agassiz Road
         (2) Option with 2 dewatering areas Agassiz Road and Lagoon areas

MEMORANDUM

DATE: October 16, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Tuesday, October 22, 2002
Time: 6:00 pm – 8:30 pm

Brookline Police Station
350 Washington Street
Brookline, MA

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: Section 2 Wetlands
Section 3 Water Quality Certification Issues
Upcoming CAC meetings

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email projectmanager@muddyriverproject.org.

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Emerald Necklace Citizen's Advisory Committee
Brookline Police Station
Tuesday, October 22, 2002
6:00 – 8:30 p.m.

Agenda

I. Welcome, Opening Remarks , Introductions & Updates 6:00 - 6:15

***Loraine DellaPorta**, MA Office of Dispute Resolution, Facilitator*
***Susan Jeghelian,** MA Office of Dispute Resolution, Assistant Facilitator*
***John Burckardt,** P.E., Project Manager*

- *Review of Agenda*
- *Review of Action Items from 10/9 Meeting*

II. Project Update 6:15-6:30
***Bruce Conklin**, P.E., Camp, Dresser & McKee*

III. Presentation – Section 2, Wetlands Protection Act Issues 6:30-7:15
***Bruce Conklin**, P.E., Camp, Dresser & McKee*
CAC Comments/Q&A

IV. Presentation – Section 3, Water Quality Certification Issues 7:15 – 8:00
***Bruce Conklin**, P.E., Camp, Dresser & McKee*
CAC Comments/Q&A

V. Upcoming Meetings/Agenda Setting 8:00-8:15

VI. Time Reserved for CAC Discussion Items 8:15-8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – October 22, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Introductions & Updates

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Susan Jeghelian, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

Review of 10/9 "Action Items"

- Mailing- everyone did receive mailing one way or another (mail or email).
- Question on public info signs- Signs are up, but running late (September sign is up now) – Bruce will continue to monitor.
- Change date of November 21st meeting- Date has been changed to Wednesday November 20th. Meeting will be held at Brookline Police Station.

II Project Update

Bruce Conklin, P.E. Camp, Dresser & McKee

- Things that have happened in the past two weeks: Dredging methodology- plans have been resubmitted to permitting agencies. Past couple of weeks have been spent going back and forth with agencies- transport fish, but does not work- solution- portodams will be lowered/raised where there are storm flows. Release of fish will happen twice in November if not already released for a storm between now and then. Dredging and tree removal should start next Monday. Water quality sampling where Muddy River empties into Charles River is happening once a week. Nothing gets reported if the samples are within the limits. Sedimentation Unit pumping has continuous (upstream and downstream) TSS monitoring on it in contained area. CDM taking responsibility for drafting of plan and for overseeing the contractor.

- Margaret commented that CRWA would like to track sampling results. Ed B. commented that he would like to see the baseline.

- Kate B. asked if there was continuous monitoring of TSS. Bruce replied that there was.

III Presentation- Section 2, Wetlands Protection Act Issues

Bruce Conklin, P.E. Camp, Dresser & McKee
CAC Comments/Q&A

- Certification Issues:

- Wetlands Protection Act Issues: Limited project versus variance; Permitting of over dredging and benefit of in stream sedimentation basins; Additional detail on alteration and replication of BVW; Additional justification on Phragmites removal benefits of more biodiversity. Dwight's colleagues are looking up additional resources to present in support of this issue.

- Water Quality Certification Issues: (This runs into the next section, but is separated for MEPA). Project meets performance standards for Water Quality Certification regulations.

- Bruce commented that the BMP program will be presented on November 6th, but that the BMP program will not catch everything.

- Alternatives to over dredging and potential impacts were discussed

- Mixing zones were discussed. At first, proponents had no indication from the state, but they do now. Suggested 500 foot mixing zone, state suggested 200 foot zone. Further study will be done and submitted to the state (DEP).

- Capture and release of fish or amphibians. The agreement with the Department of Fish and Wildlife to deal with this issue will be in the FEIR.

- Dwight Dunk of CDM presents water quality and regulations. Dwight is a professional Wetlands Scientist. Dwight reviewed the reasons for this project. Flood control, storm damage prevention, prevention of pollution, protection of fisheries, protection of wildlife habitat, protection of lands containing shellfish and protection of groundwater supply.

- Project Elements Requiring Further Justification- Back Bay Fens: in stream sedimentation basins; Riverway and upstream: bank to bank dredging, in stream sedimentation basins. Army Corps of Engineers….Basins are presented at a BMP in regards to prevention of pollution, sediment is a pollutant and has many contaminants, and prevention would be a benefit; More benefits to the fisheries are doral contact, eggs that sit on the bottom will not be impacted by the sediment. (Similar to what the ACOE did in the Quincy Town River, however the Muddy River Project is not usual.)

- Margaret V. asked if there was precedent for this – Pollution Prevention. Dwight responded that he was not aware of any.

- Margaret V. asked about cost estimates. Cost of Maintenance is in the DEIR, and would be done every ten years. Exact figures were not readily available, however Bruce will look it up and report back.

- Ed discussed the CAC working with Marion Pressley about landscaping issues and not having to cut down trees.

- Arlene M. asked whether dredging costs included repairing of damaged landscape. Bruce responded that it is anticipated that only minimal repair to landscaping will be needed.

- Arlene M. also commented that Mr. Olmsted's name was spelled incorrectly throughout the document.

- On page 2-12 and 2-13 in the EIR, maintenance is discussed, ten year extension only is for when the maintenance does not happen, but with the 50 year maintenance agreement, the ten years is obviously extended.

- Kate B. asked if the basins were bank to bank. Dwight replied that the basins are not bank to bank. Kate stated she would be interested in seeing the designs of this.

- Margaret asked if modeling was done. Bruce replied that some modeling had been done.

- Water quality certification issues deal with the eight to ten foot deep issue (everything remains well mixed because of its shallow depth). If we can concentrate where pollutants are, it is easier to remove such things, with mixing and flushing it out. In making the river deeper, the cross-section is increased and the particles flow better.

- Variance to Wetlands Protection Act: Variance may be undertaken- Overriding local, regional or national public interest; no reasonable alternatives; mitigating measure to protect wetland interests (overall project is to protect wetland interests)

- BMPS will reduce sediment by 30%, and that is both reasonable and significant.

- Kate B. stated she is concerned. Alternatives in FEIR- if the over dredging is going to cost so much money, what else could you get for $4 million in the water shed? What would be the pros and cons of spending that kind of money? She further stated that she is uncomfortable with doing this magnitude of work on an experimental basis.

- Another big concern is maintenance- will this really be maintained? Also, what about the costs, because they seemed to have changed since the DEIR?

- Kate B. encouraged the proponents to look at other alternatives.

- Questions: Could short-term impacts on dredging be addressed more in the rewriting of the document? Answer: Concept matches all of those in the constructed wetlands.

- Ed C. commented that this could be an exciting solution and that he does not see the potential risks. He stated that he wanted to convey that not everyone is against this concept.

IV Presentation- Section 3, Water Quality Certification Issues

Bruce Conklin, P.E. Camp, Dresser & McKee
CAC Comments/Q&A

- Water Quality Certification Criteria: Least damaging alternative; minimize impacts from discharge; no discharges to outstanding resource waters; no discharge permitted for impoundment or detention of storm water; Storm water discharges provided with BMPs; No discharges that meet review criteria but result in the substantial adverse impacts.

- Kate B. asked about timing. Timing for these sections is around mid November. Will the CAC be able to look at this before December deadline. Bruce answered that copies would be made available.

- Arelene M. asked if it would be appropriate to include mitigation measures for new dredging. Bruce responded that he'd have to think about that. Arlene commented that it would show forsight.

- Margaret D. commented that they are working with Marion Pressley to create and plan the space. Arlene M. replied that they should also be planning the funding and that planning for that shows good faith.

- Margaret D. discussed permit conditions. She stated that they have to re-permit 10 years from now and that they have to also go through a public process. Some protections should be implemented. We need to meet standards that exist a decade from now.

- Kate B. reiterated that she feels it is very important to look at and to be convinced that this is the best way to spend money. It seems very expensive. Margaret D. asked Kate if she would be willing to provide specific concerns so that the proponents can explore them.

- Ed B. commented that mechanics and technology change quickly.

V Upcoming Meetings/Agenda Setting

- Next meeting is November 6th, and a location is needed, info to follow. We will discuss sections 5, 6 and partially discuss section 8.

- CAC requested that someone from Transportation and Public Works is needed to be at meeting to discuss street sweeping. It would also be helpful to have someone from the MDC.

- CAC requested that Daisy Field be part of the agenda for November 6th meeting.

- November 6th meeting will be held at Northeastern University Faculty Center.

- On November 2, the EIR sections will be distributed, but no date is set because of BMP program (CDM will try to send them out the Friday prior to the meeting).

- November 20th meeting, location to be announced (since meeting location has been confirmed – Brookline Police Station)

- Sections 1, 7, left over 8, and 9 will be reviewed on 11/20. Loraine commented that agenda looked very full. Should discuss December meeting dates at next CAC meeting.

- CAC asked if Clarissa Rowe should come to a meeting (discuss flow chart, etc.)?

- Loraine reminded CAC that proponents are scheduled to present the alternative analysis (management section) that the CAC requested on November 20th.

VI. Other Discussion Items

Status Army Corps of Engineers

- Question was asked about the status of the report from the Army Corps of Engineers. John B. responded that they are not yet ready to go public with it but that it is approximately 99% complete.

Request for more 5F Committee Members from the CAC

- Status of Nominations of CAC Members to 5f Committee – Loraine contacted CAC members who were nominated at 10/9 CAC meeting. Two members responded that they might be interested. Arlene M. also made contact with one of the nominees. Nominee stated that she needed more information about responsibilities of 5f committee members.

- Comment was made that hours for 5f Committee meetings are not convenient for citizens.

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
Margaret VanDeusen	CRWA
Kate Bowditch	Brookline Conservation Comm
Ed Burke	Restore Olmsted Waterway Coalition
George Proakis	Boston Resident
Arlene Mattison	Emerald Necklace Conservancy
Tina Oddleifson	Brookline Greenspace Alliance
Ed Cutler	Brookline Resident

Meeting Attendance – Non-CAC Members

Name	Affiliation
John Burckardt	Boston Parks
Bruce Conklin	CDM
Dwight Dunk	CDM
Kathleen Cosgrove	FPA
Maraget Dyson	Boston Parks
Betsy Shure Gross	EOEA
Erin Chute	Brookline Parks & Open Spaces

Name **Meeting Attendance – Non-CAC Members**	Affiliation
Irene Gillis	Chair, ROW
Roberta Korstvedt	Brookline Resident
Claire Fleury	Boston Resident
Jeffrey Sanchez	Jamaica Plain Resident
Toni Pollack	Environmental Dept., Boston
Loraine Della Porta	MODR
Susan Jeghelian	MODR

CDM

Muddy River Restoration Project

Wetlands Protection Act and Water Quality Certification Issues

October 22, 2002

Bruce Conklin, P.E., CDM

Dwight Dunk, P.W.S., CDM

Wetland Protection Act Issues

- Limited project versus variance
- Permitting of over dredging and benefit of in stream sedimentation basins
- Additional detail on alteration and replication of BVW
- Additional justification on *Phragmites* removal benefits of more biodiversity

Water Quality Certification Issues

- Project meets performance standards for Water Quality Certification regulations
- Alternatives to over dredging and potential impacts
- Mixing zones and water quality exceedances
- Capture and release of fish or amphibians within work areas

Limited Project – Interests of the Act

- Flood control
- Storm damage prevention
- Prevention of pollution
- Protection of fisheries
- Protection of wildlife habitat
- Protection of lands containing shellfish (not applicable
- Protection of groundwater supply (not applicable)
- Protection of public or private water supply (not applicable)

Project Elements Requiring Further Justification

- Back Bay Fens
  - In-stream sedimentation basins
- Riverway and upstream
  - Bank to bank dredging
  - In-stream sedimentation basins

Variance to Wetlands Protection Act

- Overriding local, regional or national public interest
- No reasonable alternatives
- Mitigating measures to protect wetland interests

Water Quality Certification Criteria

- Least damaging alternative
- Minimize impacts from discharge
- No discharges to Outstanding Resource Waters
- No discharge permitted for impoundment or detention of storm water
- Storm water discharges provided with BMPs
- No discharges that meet review criteria but result in substantial adverse impact

Questions and Answers

Section 2
Wetlands Protection Act Issues
2.1 Introduction
2.1.1 Overview of the Wetlands Protection Act

The Massachusetts Wetlands Protection Act (M.G.L. c. 131, s. 40), "the Act" was passed to protect the wetland resources of the Commonwealth. The Act requires that prior to dredging, filling, removing or altering a wetland resource area, one must first file a Notice of Intent (permit application) and receive an Order of Conditions (wetlands permit). The Order of Conditions must include conditions on the proposed project to preserve and promote the public interests identified in the Act which include:

- Protection of public or private water supply
- Protection of groundwater supply
- Flood control
- Storm damage prevention
- Prevention of Pollution
- Protection of land containing shellfish
- Protection of fisheries
- Protection of wildlife habitat

The Act established local administration of the Act through municipal Conservation Commissions.

The Massachusetts Wetlands Protection Regulations (310 CMR 10.00 *et seq.*) "the Regulations" were developed to implement the Act. The Regulations define the procedures to implement the Act, as well as identifying the wetland resource areas, their boundaries and significance, and establishing performance standards for activities proposed in resource areas. The Regulations establish thresholds for activities that can be administered or permitted by the local Conservation Commission. Projects that exceed said thresholds (e.g. alteration of more than 5,000 square feet of bordering vegetated wetland) cannot be permitted by the Conservation Commission, and require a Variance from the Act. The Commissioner of the Department of Environmental Protection (DEP) issues a Variance. Procedures for a Variance are presented in 310 CMR 10.05.

The Regulations also identify a number of activities that can be authorized by the Conservation Commission, or DEP if the local Order of Conditions is appealed, that exceed the established threshold without the need for a Variance. These activities are commonly referred to as "limited projects." Limited projects are activities that serve to protect, preserve or restore the environment and/or the interests of the Act, such that the benefits of the activity outweigh the potential impacts, and/or the delay of

the benefit through an extensive permitting process may cause greater harm than benefit. Section 10.53 (3) – (6) of the Regulations identify the limited projects and applicable performance standards.

As described in the DEIR, the wetland resource areas were delineated and the delineation of resources was submitted to the Boston and Brookline Conservation Commissions for review and approval via the Abbreviated Notice of Resource Area Delineation process. The Commissions reviewed the boundaries and issued Orders of Resource Area Determinations, copies of which were presented in Appendix __ to the DEIR. Therefore, authorization in accordance with the Act and Regulations will be required to implement this important public project.

The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project (the Project) involves work within and adjacent to state jurisdictional wetland resources (Land Under Waterbodies and Waterway, Inland Bank, Bordering Vegetated Wetlands (BVW), Land Subject to Flooding, Riverfront Area and the 100-foot buffer zone to Inland Bank and/or BVW) and will need approval pursuant to the Act. In accordance with the Certificate in the DEIR, this FEIR will describe the project and its components that are eligible to be authorized by the local Conservation Commission(s) as a limited project, and those components that may require a Variance. For those components that may require a Variance, sufficient information is provided to document that: 1) the project provides an overriding public interest, 2) no other feasible alternative exist, and 3) measures are included to mitigate impacts and protect the interests of the Act.

2.1.2 Summary of Wetland Impacts in Back Bay Fens

Work in the Back Bay Fens involves work within Land Under Water, Inland Bank, BVW, Land Subject to Flooding and Riverfront Area, as well as the 100-foot buffer zone to Inland Bank and/or BVW. The extent and location of these activities is described below in Section ____. The majority of work (i.e. area of alteration) involves dredging Land Under Water to remove accumulated sediment and *Phragmites*, with limited alteration of BVW and Inland Bank for the eradication of *Phragmites* growing within the river channel and restoration of riparian plantings along the river. As documented in the DEIR, these activities will occur within approximately 16.2 acres of Land Under Water, 0.4 acres of BVW and along 13,540 linear feet of Inland Bank.

2.1.3 Summary of Wetland Impacts in the Riverway

To be added

2.2 MEPA Certificate and Draft EIR Comments

Both MEPA and DEP requested that more information be provided in the Final EIR regarding the ability of the project to comply with the Wetlands Protection Act. Specific issues include:

- Which aspects of the project can be permitted at the local level (by the Conservation Commissions of Brookline and Boston) and which will require a variance from the Wetlands Protection Act;
- Where a variance is needed, demonstrate how the project can meet the variance requirements;
- Evaluate alternatives to over-dredging including any alternatives required by DEP and an alternative that relies on enhanced stormwater management/BMP implementation in the Muddy River watershed upstream of the Back Bay Fens;
- Include detailed measures for bank-to-bank dredging to prevent sediment transport; and
- Provide more data on in-stream sedimentation basins and their water quality. Analysis should include future dredging, frequency and cost-effectiveness.

Section 2.3 addresses issues pertaining to Wetlands Protection Act compliance.

Other wetland issues raised by MEPA and Draft EIR reviewers include:

- Include more detail (quantitative and qualitative) on alteration and replication of BVW, including areas of permanent loss and areas of replication;
- Provide more detail on specifics of *Phragmites* removal and replication design; and
- Include an analysis of whether any other invasive species will be removed and methods of removal.

Section 2.4 addresses these other issues.

2.3 Wetlands Protection Act Compliance

Pursuant to the Certificate on the DEIR, this section explores the proper permitting category for the Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project - i.e., limited project status versus variance, or a combination of the two. The project has several objectives that serve to contribute to the interests of the Act (noted in parentheses):

1) Alleviate flooding along the river corridor and reduce flood damage to public and private property (Flood Control and Storm Damage Prevention);

2) Improve the water quality of the river by restoring river hydraulics to original conditions and removing contaminated sediments (Prevention of Pollution and Protection of Fisheries); and

3) Restore river bank plantings to increase plant species diversity and structural diversity to the riparian plant community compared to existing conditions (Protection of Wildlife Habitat).

Therefore, the basic project purpose serves to restore and protect five of the eight interests of the Act.

The following sections discuss the permitting status for project elements and subareas, and presents documentation for DEP to consider when making its decision whether to permit the project under the limited project provisions or to require a variance.

2.3.1 Limited Project Compliance – Dredging

The proposed dredging project will increase the hydraulic capacity of the river and will have very positive effects on the flood control and storm damage prevention interests, while having no adverse effects on the other applicable interests of the Act. Dredging beyond the minimal channel to restore flood flow capacity is proposed and is referred to as bank-to-bank dredging. Bank-to-bank dredging will remove contaminated sediment as well as *Phragmites* stands present along the river. Removal of contaminated sediment is beneficial to pollution prevention and fisheries, while removal of *Phragmites* is beneficial to wildlife habitat. Removal of *Phragmites* beyond the flood flow channel will also serve to remove a seed source to prevent or minimize *Phragmites* colonization of the river corridor.

The DEP has commented that the limited project status likely applies to portions of the project (i.e. Charlesgate and Back Bay Fens dredging and *Phragmites* removal), while the full bank-to-bank dredging in upstream areas most likely will require approval as a Variance project. The limited project activity authorized by 310 CMR 10.53(4) allows projects to proceed that *"will improve the natural capacity of a resource area(s) to protect the interests"* of the Act, provided the activity does not adversely affect the ability of the resource area to protect the other interests of the Act or results in no change (neutral effect) to the capacity of the resource area to protect the other interests of the Act.

There are no thresholds or upper limits for alterations to Land Under Water or Inland Bank above which a Conservation Commission cannot issue an Order of Conditions. However, Conservation Commissions cannot issue an Order of Conditions for the alteration of more than 5,000 square feet of BVW unless the activity is a limited project

activity. As described above, the project will require alteration of more than 5,000 square feet of BVW. Therefore, this work must meet the limited project criteria for approval for this work as an Order of Conditions, otherwise a variance issued by the DEP Commissioner will be required.

The work in the Back Bay Fens and Riverway is proposed as a limited project pursuant to 310 CMR 10.53(4) which allows projects to proceed that *"will improve the natural capacity of a resource area(s) to protect the interests"* of the Act. The work will improve the capacity of these project areas to protect the following interests of the Act:

- Flood control
- Storm damage prevention
- Prevention of pollution
- Protection of fisheries, and
- Protection of wildlife habitat

The project will have no effect, positive or negative, to land containing shellfish; and whereas there are no water supplies in the project area, protection of public or private water supply and protection of ground water supply are not considered to be applicable. The following paragraphs discuss the five interests listed above.

The flood control and storm damage prevention capacity of the Muddy River will be enhanced by dredging and removal of *Phragmites* from the river channel, especially where expanded *Phragmites* stands have reduced the channel cross-sectional width. As documented in Section __ of the DEIR and further described in the Section 4 of the FEIR, dredging will increase the carrying capacity of the river resulting in the reduced flood levels and subsequent reduction of flood damage to public and private property. This is a basic goal of this project.

Bank-to-bank dredging and the resulting removal of *Phragmites* will protect and enhance the interest of pollution prevention. The sediments in the river are documented to contain elevated levels of metals, PAHs, and petroleum hydrocarbons, with PCBs and DDT (and its metabolites) also found frequently. Contaminant concentrations were observed to be higher in surface sediment and to decline with depth (USACE, 2002). A certain amount of sediment is re-suspended during storm events due to increased water flow velocities, thus transporting pollution from one section of the river to downstream areas, and ultimately to the Charles River. Removing contaminated sediment from the riverbed will remove this contamination source and prevent the continued transport of pollution throughout the river which ultimately discharges to the Charles River. Therefore, it is presumed to improve the

pollution prevention interest by removing a pollution source present in the river channel.

Wildlife habitat will be protected through the removal of sediment in bank-to-bank dredging. Appendix D to the Muddy River Boston and Brookline, Massachusetts Draft Decision Document and Environmental Assessment presents the Sediment Quality and Ecological Risk Evaluation (USACE, 2002, unpublished). This assessment utilized multiple lines of evidence to evaluate the Muddy River sediment quality and potential affects to aquatic organisms. Evidence evaluated for this assessment included:

- Comparison of river sediment chemistry to sediment quality guidelines,
- Comparison of river water quality data to ambient water quality criteria,
- Analysis of bioassays (toxicity tests) compared to reference sediment on growth and survival of test organisms (invertebrate and fish test organisms),
- Analysis of fish tissue and comparison to literature based effect values,
- Evaluation of food chain exposure, comparing daily intake of chemicals of potential concern (COPCs) to threshold response values, and
- Evaluation of food chain exposure for piscivorous wildlife.

The Corps utilized several data sets for the completion of the ecological risk assessment to determine: sediment quality, water quality, benthic community structure, fish community, and fish tissue concentrations of COPCs. The benthic community is dominated by pollution tolerant species and the fishery is typical of a warm water fish community. The risk characterization evaluated the river segments identified as Wards Pond, Willow Pond, Leverett Pond, The Riverway, and Back Bay Fens. The results of the ecological risk characterization concluded that the Muddy River sediment posed a risk to biota that utilize the Muddy River. A summary of specific conclusions is presented below.

Sediment is likely to adversely effect benthic organisms and fish at all stations except Wards Pond, based on comparison of river sediment data to sediment quality guidelines and bioassay test results. Sediment concentration of metals, PAHs, pesticides and PCBs exceeded sediment quality benchmarks, and in may cases concentrations exceed the standard by one or more orders of magnitude making adverse impacts to invertebrates probable. Sediment was documented to be toxic to test organisms exposed to sediment from Willow and Leverett Pond, The Riverway and the Back Bay Fens, based on studies conducted in 1995 and 2001.

Food chain modeling identified a risk to avian populations at all stations. The Riverway and Back Bay Fens sediment have the highest concentrations of PCBs and the greatest bioaccumulation of PCBs in fish. Consequently, risk to piscivorous wildlife is highest to animals that feed in these two river segments. Risks are also

present for insectivorous birds, feeding on insects that emerge from aquatic larval life stages.

Fisheries and wildlife habitat interests will be improved by the proposed dredging and replanting of the riparian zone with a more structurally diverse community and increased species diversity comprised of native plantings, respectively. Removal of contaminated sediments from the river ecosystem will expose clean native sediments, or at worst, less contaminated anthroprogenic sediments, thus reducing the adverse impacts to benthic invertebrates and subsequent bioaccumulation and magnification up the food chain. Newly exposed (post-dredging) sediment contaminant levels in most river segments will be significantly lower than existing surface sediment contaminant concentrations (USACE, 2002) based on analysis of sediment cores collected at varying depths below the surface. This will result in lower hazard quotients for COPCs in the future compared to existing conditions. Improved sediment quality is expected to improve conditions for benthic invertebrate survival, growth and reproduction resulting in improved food resources for fishes as well as insectivores wildlife (wildlife feeding on insects that emerge from aquatic larval life stages). In the Back Bay Fens, hazard quotients for mercury increase slightly due to lower total organic carbon, although mercury concentrations decrease with depth. Lower total organic carbon increases bioavailability of mercury. It was noted that several conservative assumptions were included in development of the food chain model which may overstate potential risk, such that actual risk may not increase for mercury. No such phenomenon is anticipated for sediments in the Riverway section and Leverett Pond, post dredging risk from sediment contamination is reduced in these stretches of the river compared to existing conditions.

The existing riparian zone is dominated by *Phragmites* and/or maintained lawn areas with only a few trees or shrubs present in the Back Bay Fens project sub-area. Throughout the Riverway the riparian zone is characterized as a narrow fringe of lawn along the river, bisected by the old carriage paths (now used as walking paths). Beyond the fringing lawn are roadways and, in sections, trolley tracks. Trees are scattered throughout the ribbon of lawn along with scattered patches of shrubs. Much of the open space around Leverett Pond is open lawn area with trees and shrub masses scattered throughout. These conditions provide limited wildlife habitat along the river corridor.

The proposed riparian zone planting plan utilizes native plants (trees, shrubs and herbaceous plants) to replace *Phragmites* and lawn areas resulting in improved structural and species diversity. Increased structural and species diversity will improve the wildlife habitat capacity of the riparian corridor compared to existing conditions. As stated in Pianka, 1983, *"Structurally complex habitats obviously offer a greater variety of different microhabitats than simple habitats do. Because there are more different ways of exploiting them, such spatially heterogeneous habitats usually support more diverse species than homogenous ones do; ...".* Section 2.4 below presents a discussion of

Phragmites functions and values, and a comparison of replication area functions and values to *Phragmites* functions and values.

2.3.2 Limited Project Compliance - In-Stream Sedimentation Basins

2.3.2.1 Purpose of Basins

Seven in-stream sedimentation basins are proposed – three in the Back Bay Fens area and four in the Riverway area. These basins are proposed to be permitted pursuant to the limited project regulations 310 CMR 10.53(4) as part of the overall dredging activities as described above. The DEP has questioned the ability of these basins to meet the criteria for permitting via 10.53(4). It is the proponent's opinion that these basins can be permitted pursuant to section 10.53(4) of the Regulations because this project element will improve the pollution prevention capacity of the river, while not adversely affecting the other applicable interests of the Act.

The purpose of these sediment basins is to provide a basin to collect sediment conveyed to and through the river, and to prevent it from being dispersed throughout the river channel and building up in the channel.

Sediment can settle out in the in-stream basins because the larger channel cross-sectional capacity at these locations can convey the same flow rate at a reduced velocity compared to a narrower or shallower stretch of the river. Flow rate is a unit of volume per time (e.g., cubic feet per second [cfs]), a channel cross section is measured in area (e.g., square feet), thus, dividing flow rate by the channel area yields flow velocity (e.g., feet per second). Therefore, the water velocity changes as water moves through the river depending upon the channel cross sectional area for a constant flow rate. Construction of the in-stream basins will increase the channel area, resulting in reduced water velocity through the in-stream basins. Reduced water velocity allows sediment to settle out of the water column rather than to remain in suspension. The basins have been strategically placed to settle out suspended solids to reduce flow velocity and trap sediment.

Urban runoff is documented by others (SOURCES – NURP STUDIES, SCHULER, ETC.) to contain contaminants either adsorbed or absorbed to sediment particles. Trapping the sediment in specified locations will prevent the transport of polluted sediment throughout the river which ultimately discharges to the Charles River. In the future, smaller scale dredging projects can be implemented to remove the accumulated sediment from these discrete traps and avoid the need for a large-scale project to remove sediment from the entire river. Therefore, this project element is proposed to improve the capacity of Land Under a Waterway to prevent the widespread distribution of pollution conveyed with sediment contained in runoff, while having no adverse effects to the other interests of the Act.

Land Under a Waterway is presumed significant to protection of public or private water supply, protection of groundwater supply, flood control, storm damage

prevention, prevention of pollution, protection of fisheries, and protection of wildlife habitat. Due to the location of the Muddy River and lack of water supplies in or adjacent to the river, this resource area is not significant to protection of public or private water supply or protection of groundwater supply.

The overall dredging project is designed to improve the capacity of the river to provide flood control, storm damage prevention. These basins will neither further improve nor diminish the improvement provided by the dredging project and are therefore considered to have a neutral impact on these two interests.

This project element will improve the prevention of pollution function of the river as described above by removing a source of pollution present in the river, as well as by trapping sediment carried to the river from urban runoff in discrete areas of the river to prevent the transport of pollution (sediment from urban runoff) throughout the river corridor. The project includes the development and implementation of a watershed BMP plan to reduce the sediment load to the river from the tributary area. This will be implemented and will decrease the volume of sediment conveyed to the river compared to historic and existing sediment loadings. However, sediment will continue to be conveyed to the river with urban runoff. The in-stream sediment traps will serve as the last BMP in the proposed "treatment train" to reduce the transport of sediment throughout the river channel.

2.3.2.2 Back Bay Fens

In the Back Bay Fens, the in-stream basins are located:

- Immediately downstream pf the Avenue Louis Pasteur culvert,
- At the Boston Gatehouses, and
- Downstream of the Duck House.

The Emmanuel College drain overflow discharges runoff at the Avenue Louis Pasteur. Placement of an in-stream basin at this location will trap sediment near the outlet of this drain to prevent its transport further downstream. During wet weather, the river experiences increased flow rates due to this drainage outlet. Providing an in-stream basin at this point will greatly reduce water velocity at the drainage outlet and improve the settling rate in the river at the outlet compared to no in-stream basin at this location.

Two drainage outlets discharge runoff to the river at the Boston Gatehouses. Currently sediment carried in runoff settles out at the Gatehouses creating the large sand flat observed in the river at this location. Construction of an in-stream basin at these outlets will provide a sump to collect sediment discharged from these outlets without reducing the hydraulic capacity of the river at this location. This will serve to trap sediment more efficiently and preserve the flood flow capacity of the river at this station.

The third in-stream basin is located just downstream of the Duck House. Although there is no drainage outlet at this location, it is downstream of a narrow section of the river. Due to the narrower channel cross-section the same rate of river flow will need a flow at a higher velocity compared to river sections with larger hydraulic capacity. Water velocity will increase through the Agassiz Road culvert and narrower channel cross-section in this area. Construction of the in-stream basin downstream of this section will create greater hydraulic capacity thus reducing water velocity and allow sediment to settle out of the water column.

No adverse impact to fisheries is anticipated as a result of the in-stream sediment basins. Water depths in the Back Bay Fens range in depth from two to four feet. The proposed dredging project will increase water depths to 6 to 8 feet. At the proposed in-stream sediment basins, water depths will range from 8 to 10 feet. The DEIR documented the presence of warm water fish species in the Back Bay Fens area including American Eel, Bluegill, Common Carp, Goldfish, Largemouth Bass, Golden Shiner, Pumpkin Seed, and Yellow Perch. These warm water fish species are often found in shallow ponds and slow moving rivers in the Commonwealth. Dredging to the proposed sediment basins depths is within the normal depth ranges for these fishes. As documented by the Corps (USACE, 2002) in general, sediment contamination decreases with depth and therefore the sediment exposed in the in-stream basins (if not native material) will typically be less contaminated than other parts of the river not dredged to native material.

2.3.2.3 The Riverway

Four in-stream sedimentation basins are proposed in the Riverway and other upstream sections of the Muddy River. These are located at storm drain outlets to collect sediment conveyed in runoff, except at the Back Bay Yard where it is located to trap sediment before flow is conveyed through culverts under the park Drive/Riverway connector. In-stream basins are proposed at the:

- Back Bay yard (at the culvert inlet),
- Downstream of Netherlands Road (Longwood Avenue drain),
- Between Brookline Avenue and The Riverway at Aspinwall Road (Tannery Brook drain), and
- In Leverett Pond at the Village Brook Drain.

Construction of the in-stream basins in the Riverway and Leverett Pond are located at drain outlets to settle out sediment conveyed in runoff without loss to the cross-sectional area of the channel restored by this project.

At the Back Bay Yard, the basin is proposed at the culvert inlet to trap sediment before it enters the culvert to prevent sediment accumulation within the culverts. The ACOE has constructed a sedimentation basin, or trap, similar in function to those proposed for this project. A concrete basin was constructed in the stream and

immediately upstream of the culvert inlet to the Town River in Quincy, MA. The purpose of the sedimentation basin or trap is to prevent sediment from accumulating in the downstream culvert since it would be more difficult to remove sediment from the culvert than the trap. The ACOE reports that the trap is working well and preventing sediment from collecting in the culvert.

The ACOE has included the in-stream sedimentation basins as an important element of the project in their Decision Document. Their justification not only includes the environmental benefits of the basins by controlling pollutant levels in the river, but they are included as a critical maintenance element. The ACOE will require the Proponents to accept a maintenance agreement as a condition of funding the project. They have indicated that they consider the in-stream sedimentation basins as a key element in future maintenance. Interim dredging within the basins would lessen future impacts from a major dredging program in the future and maintain the capacity of the flow channel.

No adverse impact to fisheries is anticipated as a result of the in-stream sediment basins. Water depths in the Riverway section of the Muddy River range in depth from two to four feet. The proposed dredging project will increase water depths to 6 to 8 feet. At the proposed in-stream sediment basins, water depths will range from 8 to 10 feet. The DEIR documented the presence of warm water fish species in the Back Bay Fens area including Red Fin Pickerel, Brown Bullhead, Yellow Bullhead, Common Carp, Goldfish, Golden Shiner and Pumpkin Seed. These warm water fish species are often found in shallow ponds and slow moving rivers in the Commonwealth. Dredging to the proposed sediment basins depths is within the normal depth ranges for these fishes. As documented by the Corps (USACE, 2002) in general, sediment contamination decreases with depth and therefore the sediment exposed in the in-stream basins (if not native material) will typically be less contaminated than other parts of the river not dredged to native material.

2.3.4 Ability of In-Stream Basins to Meet Variance Standards

2.3.4.1 Overview

In the event the issuing the authority does not agree with the use of section 10.53(4) for dredging the in-stream sedimentation basins, the construction of the basins would meet the standards for issuance of a variance, as follows:

1) The basins will serve an overriding local, regional or national public interest,
2) There are no other reasonable alternatives to the proposed basins, and
3) That mitigating measures are proposed to protect wetland interests.

The purpose of the in-stream sedimentation basins is to trap sediment conveyed to the river from tributary drainage systems and sediment from bank erosion. Trapping the sediment in discrete locations will prevent the transport of sediment throughout the river channel affording a variety of benefits to the river.

The proposed in-stream sedimentation basins are a key component to the pollution prevention aspect of this project, as described above. In addition to trapping sediment to prevent conveyance of sediment throughout the channel, the basins will increase the project's "life span."

2.3.4.2 Overriding Local and Regional Interests

The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project is a regional project which will improve a public resource located in two different communities and used by millions of residents and visitors each year. This project is proposed by the Boston Parks and Recreation Department and the Town of Brookline, with additional project support offered by the Boston Water and Sewer Commission, Boston PWD, Brookline DPW, the Metropolitan District Commission, the Executive Office of Environmental Affairs, Department of Environmental Management, Massachusetts Emergency Management Agency, Federal Emergency Management Agency, Housing and Urban Development, and the U.S. Army Corps of Engineers. The consortium of organizations behind this project underscores the local and regional interest of this project.

The overall project goals include flood control, water quality and wildlife enhancement and historic renovation and preservation of the Emerald Necklace. The October 1996 and June 1998 storms caused millions of dollars of damage to public and private property. The MBTA Green Line Kenmore Square Station was completely flooded and flooding extended to the Symphony and Arlington Stations and tunnels in between. This flooding disrupted trolley service for the 200,000 plus daily riders of this trolley line until needed repairs were completed. Basement flooding occurred in Brookline homes, area universities and at the Museum of Fine Arts where rare artwork is stored. Furthermore, these flood events nearly closed the neonatal care facilities at Children's Hospital. Water quality and aquatic habitat improvements to the Muddy River will result via the removal of contaminated sediment and implementation of the proposed storm water BMP plan to reduce the volume of sediment and floatable contamination conveyed to the river.

Maintenance of the basins will require periodic small-scale maintenance dredging as part of the BMP management plan, to ensure these features function properly. Financially, these basins will expand the life span of this project and can minimize the costs needed to maintain the flood control improvements resulting from this project compared to eliminating the in-steam sedimentation basins.

Back Bay Fens

The current project involves removal of 80,000 cubic yards of sediment from the Back Bay Fens, approximately 40 percent of the total project (165,000 cubic yards, not including *Phragmites* removal), and will cost approximately $19.4 million of taxpayer money for the design, permitting and implementation of this project. Ongoing operations and maintenance of the BMPs and landscaping improvements will carry additional costs.

The goal of the BMP program is to reduce the discharge of sediment to the Muddy River by 30 percent from the current estimate of 2,500 cubic yards per year to 1,750 cubic yards per year. Based on an average between the current rate and the new rate, the river would lose the flood flow capacity restored by this project over the next 70 years, and would need to be dredged again to restore the river's carrying capacity and flood control functions restored by this project. If the sedimentation basins are constructed totaling 21,150 cubic yards for the entire Muddy River, it would take an additional 10 years at the average deposition rate to fill the basins extending the project life to 80 years. The expected costs would be similar to this project (plus an adjustment for inflation).

The Riverway

Need to insert similar data for the Riverway as presented above for the Back Bay Fens

2.3.4.3 No Other Reasonable Alternatives

As described above, the in-stream basins are the last BMP in a series of BMPs proposed for this project. Up-stream BMPS include

[Summarize features here – bullet list]

The in-stream basins are the last BMPs in this treatment train. They are designed to trap sediment carried in runoff as well as sediment washed off eroded riverbanks to prevent it from being distributed along the entire riverbed. Other alternatives to trap sediment prior to discharge to the river include construction of sedimentation basins outside of the river (i.e. along the river banks) or construction of large underground storage tanks. These options would collect sediment conveyed in the drainage system but would not trap sediment from eroding banks. These two alternatives have significant drawbacks as described below.

The Muddy River flows through the Emerald Necklace Reservation. Another major component of this project is the restoration and preservation of the Emerald Necklace Reservation designed by Fredrick Law Olmstead, Sr. Construction of sedimentation basins along the river and within parks and gardens along the riverbank is not in keeping with the original Olmstead design. Furthermore, basins along the river would usurp space currently used for, and most suitable for, public enjoyment. Because construction of sedimentation basins along the river's banks is 1) contrary to other project goals, and 2) would remove existing public open space from public use, this alternative was rejected from further consideration.

Underground storage tanks are not feasible for two related reasons, cost and constructability. Construction of underground tanks and restoration of the surface to the Olmstead Plan are significantly more expensive than the small incremental added cost of dredging the in-stream sediment basins during the overall dredging project, and would increase overall project costs by XX%. Furthermore, in the Back Bay Fens

river segment, the urban area in which these tanks would need to be built (in the vicinity of Boston Gatehouses and Avenue Louis Pasteur) contains several underground utilities which would need to be relocated to accommodate large storage tanks. This situation makes construction very difficult and extremely expensive. In addition, supplemental storage of runoff, either in detention basins or underground storage tanks, does not provide a trap for sediment conveyed to the river by bank erosion or other non-point source discharges. Therefore, they could not trap or collect sediment from these other sediment sources.

The Riverway is essentially a long narrow corridor along the river bounded by secondary roadways on either side of the river corridor. There is insufficient space to construct suitably sized basins within this narrow park along the river.

These alternatives were not considered beyond the preliminary planning stage because they are more costly, more difficult to construct and less efficient than in-stream basins, as described above.

2.3.4.4 Mitigating Measures Provided to Protect Wetland Interests

The project purpose is several fold, with a major project goal being to improve the flood control and storm damage prevention functions of the Muddy River, as well as to preserve the other interests of the Act. The project is proposed to mitigate flooding along the river during extreme storms, such as the October 1996 storm. In this way the project is itself a mitigation measure. The project as proposed is designed to protect the interests of the Act. The in-stream sedimentation basins, as described above, serve to protect the pollution prevention interest, with no adverse effects to other applicable interests of the Act. Measures are proposed for the construction phase to avoid and mitigate construction impacts to the river. However, once dredging of the in-stream basins is completed no additional mitigation measures are warranted, because no adverse impacts to the riverbed and applicable interests of the Act will be adversely affected by the presence of the basins.

Construction period mitigation measures for dredging, including the dredging of in-stream sedimentation basins include:

- Silt curtains with oil-absorbent booms will enclose the work area. Silt curtains will not be deployed across the river, so as to maintain a passage for fish and other aquatic organisms through the work area.
- Silt curtains and oil absorbent booms will inspected daily and repaired as needed.
- No dredging will occur between March 15 and June 15 due to the fish run.
- A water quality monitoring program will be developed and implemented for the duration of the in-water work. ** Will import the monitoring requirements for the Charlesgate dredging onto this section**

- [To be added]
- [To be added]

2.4 Extent of Wetland Loss and Wetland Replacement

*The following sections are being developed, the test below presents an outline of our approach**

2.4.4 Wetland Impacts and Replication

- Describe and document extent and locations of wetland loss – include figures
- Describe and document extent and locations of replacement wetlands – include figures – in the Back Bay Fens, Riverway and Olmstead Parks areas
- Include cross-sections of wetland replication areas (typical) – in the Riverway and Olmstead Parks areas
- Include discussion of *Phragmites* removal areas and replication design – Fenway Area – include typical cross-sections

2.4.5 Wetland Functions and Values

- Describe/document existing F/V for each river section upstream of Fenway Review data presented in DEIR and augment as needed
- Compare functional equivalency or lost to replaced wetlands for each river section upstream of the Fenway

2.4.6 Phragmites Functions and Values

Evaluate *Phragmites* functions and values from the literature, correlate to the project areas – big issues

- size of *Phragmites* patches,
- *Phragmites* poor or lower nutrition value compared to other food sources
- segmentation of patches by roads, culverts etc.,
- active urban land use surrounding Fens, Riverway and other upstream areas. *Phragmites* patches and other landscaped areas provide only resource (refuge) in this urban landscape for avian species and small mammals – cover, nesting sites, food source
- Replacement of Phragmites with other plants will provide cover habitat, nesting sites and food source equal to or better than *Phragmites* stands.

Compare replacement wetland F/V in area areas of *Phragmites* patches to F/V of *Phragmites* birds and mammals will utilize the new resources provided in the restored riparian corridor.

Section 3
Water Quality Certification Issues

3.1 Overview of Water Quality Certification

Section 401 of the Clean Water Act (CWA) requires that states issue a Certification that any proposed filling of waterways or wetlands will comply with the state's Surface Water Quality Standards. The need for a Water Quality Certification (WQC) is triggered when a federal permit is required for the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands. The Massachusetts DEP developed the WQC Regulations (314 CMR 9.00) to administer Section 401 of the CWA as well as the Massachusetts Clean Water Act (M.G.L. c. 21, sections 26 through 53). The WQC Regulations apply to discharge of dredged or fill material, dredging, and dredge material disposal activities in waters of the U.S. within the Commonwealth [314 CMR 9.01(2)].

The applicable definitions presented in 314 CMR 9.02 are the following:

Discharge of dredged or fill material – Any addition of dredged or fill material into, including any redeposit of dredged material within, water of the United States within the Commonwealth. The term includes, but is not limited to:

(a) direct placement of fill, including any material used for the primary purpose of replacing with dry land or of changing the bottom elevation of a wetland or water body,

(b) runoff from a contained land or water disposal area,

(c) redeposit of dredged material including excavated material which is incidental to any activity including mechanized land clearing, ditching, channelization or other excavation, and

(d) the placement of pilings when it has the effect of fill material.

Dredged material disposal – The transport, placement, or deposition of sediments or other material after dredging.

Dredging – The removal of sediment or other material from land under water below the mean high tide line for coastal waters and below ordinary high water for inland waters. Dredging shall not include activities in bordering or isolated vegetated wetlands.

Section 9.06 of the WQC Regulations presents the evaluation criteria for applications for reviewing the discharge of dredged or fill material. Section 9.07 presents the evaluation criteria for applications for dredging and dredged material disposal. The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project (the Project) includes dredging the Muddy River to increase the

flood flow capacity of the river to alleviate flooding and flood damage to public and private property. One would expect that the applicable review criteria for this dredging project is Section 9.07. The DEP interpretation of the definitions presented above expands the definition of discharge of dredged material to include incidental fall back of dredged material during sediment removal (dredging) operations. Therefore, the review criteria for both sections of the regulations (Sections 9.06 and 9.07) are determined by DEP to apply to this dredging project.

3.2 MEPA Certificate and Draft EIR Comments

In his Certificate on the DEIR, the Secretary indicates that the FEIR should provide additional discussion of the project's ability to address WQC issues, including the following:

- Demonstrate that project meets the applicable performance standards in the WQC regulations; and
- Provide an alternatives analysis demonstrating that the proposed over-dredging is the preferred alternative.

DEP also had a number of comments pertaining to WQC issues as follows:

- Discuss in detail WQC jurisdiction;
- Demonstrate that no other practicable alternative exists to the creation of in-stream sedimentation basins;
- Address the potential negative biological impacts of in-stream basins;
- Develop site-specific approach to defining mixing zones;
- Discuss suspended solids limit and how the background is defined;
- Outline corrective actions for water quality exceedances and criteria for defining exceedances;
- Allowable TSS or turbidity to be returned to the river should be linked to the reference location TSS or turbidity;
- Individuals hired to capture and release Three-Spine Sticklebacks will need appropriate certifications/licenses; and
- Capture and release any fish or amphibians impounded within the work areas.

3.3 Water Quality Certification Compliance

3.3.1 Introduction

Project elements subject to DEP jurisdiction pursuant to the WQC Regulations include the dredging activities in the river below ordinary high water, as well as any excavation or grading in jurisdictional wetlands including habitat restoration

activities. The key criteria or performance standards from Section 9.06 of the regulations that are applicable to this project include:

- Selection of the least damaging practicable alternative;
- Discharges will not be permitted unless appropriate and practicable steps have been taken to minimize impacts to waters of the U.S.;
- No discharges to Outstanding Resource Waters (ORWs) are permitted except for specific circumstances specified in 9.06(3)(3);
- No discharge is permitted for the impoundment or detention of stormwater for the purpose of controlling sediment or other pollutant attenuation. Discharges may be permitted to manage stormwater for flood control purposes provided there is no other feasible alternative;
- Stormwater discharges shall be provided with the BMPS to attenuate pollutants and require a setback from waters of the U.S.; and
- No discharges will be permitted that meet the review criteria in circumstances where the discharge would result in substantial adverse impacts to surface waters of the Commonwealth.

Section 9.07 of the regulations presents the sediment classification criteria (both physical and chemical quality) of sediment, as well as dredging and DEP approved disposal methods, depending upon sediment quality and disposal location. Dredging and sediment management is presented in Section 4 of this FEIR. The following evaluates the dredging activities pursuant to Section 9.06 of the regulations.

3.3.2. Selection of Least Damaging Practicable Alternative

There are basically two alternatives available to dredge the Muddy River: mechanical dredging by excavator or clamshell or hydraulic dredging. A description of dredging techniques is presented in Section 2 of the DEIR. Based on the review of the various dredging techniques, hydraulic dredging was identified as the most appropriate technique throughout the project area. Hydraulic dredging avoids or greatly minimizes potential impacts associated with mechanical dredging.

Hydraulic dredging minimizes the water quality impacts associated with sediment removal and transport. The suction action collects the majority of suspended sediment generated during sediment removal, greatly reducing the transport of turbid water downstream, compared to mechanical dredging. Pumping the dredged material in enclosed pipelines avoids fall back or spills of dredged material back into the river. Fall back or spills of dredged material into the river during mechanical dredging using a bucket or clamshell is almost unavoidable. Also transport of sediment to the dewatering staging area by pipeline only requires placement and periodic relocation of the pipeline from the work area to a dewatering area. This avoids or greatly minimizes impacts to surrounding environments compared to mechanical dewatering. Along the Muddy River, mechanical dredging would either

require numerous dewatering areas within the reach of the dredging equipment, or transport of sediment by truck to fewer centralized dewatering staging areas. This alternative would require that trucks have access along nearly the entire shoreline of the river for transfer of sediment from the excavation bucket to the truck bed. This would result in excessive alteration of the riverbank compared to placement and periodic relocation of a temporary surface pipeline. Based on this summary evaluation of dredging techniques, it is apparent that the benefits (reduced impacts) of hydraulic dredging favor the selection of hydraulic dredging compared to mechanical dredging.

Whereas hydraulic dredging avoids, or greatly reduces the risk of redeposition of dredged material to the river, one could argue that this technique does not result in the incidental fall back of dredged material and therefore is not subject to Section 401 of the CWA, as no discharge of dredged material is anticipated.

3.3.3. Appropriate and Practicable Steps to Minimize Impacts to Waters of the U.S.

As discussed above, the first step to minimize impacts is to select the least damaging dredging technique. Use of hydraulic dredging avoids many of the potential impacts to waters and wetlands associated with mechanical dredging. Additional measures to minimize impacts during dredging include the following:

- Deploy silt curtains with oil-absorbent booms to enclose the work area. Silt curtains will not be deployed across the river, so as to maintain a passage for fish and other aquatic organisms through the work area.
- Silt curtains and oil absorbent booms will be inspected daily and repaired as needed.
- No dredging will occur between March 15 and June 15.

A water quality monitoring program will be developed and implemented for the duration of the in-water work. Monitoring events and parameters will include:

1. Continuous monitoring of turbidity, both up and downstream within 200 feet of the dredge;

2. Weekly collection of water samples to be analyzed for TPH, total and dissolved lead (dissolved lead shall be less than 1.0 micrograms/l, a site-specific, chronic, water-quality criteria based on 40 mg CaCO3/l measured at the nearest sampling location);

3. Weekly measurements of water temperature, pH, and DO;

4. Weekly sampling of the filtrate for analysis of TSS, total and dissolved lead, and DO. To be suitable for discharge, the filtrate shall have a TSS of less than 40 mg/l, dissolved lead less than 1.0 micrograms/l, and a minimum DO level

of 5 mg/l. The filtrate shall be discharged into the Muddy River within a silt-curtained enclosure equipped with an oil-absorbent boom; and

5. A request for 36-hour turnaround time when samples are delivered to the lab for analysis.

The monitoring and analytical results shall be attached to the weekly Environmental Inspection Report to DEP

Prior to the start of in-water work, any polymer proposed for use shall be identified and information about its aquatic toxicity shall be forwarded to DEP

Any oily material, as evidenced by a visible sheen, released during dredging shall be promptly collected and reused or disposed of at a licensed facility

Dewatering and reuse conditions per DEP Interim Policy Comm-94-007 and Comm-97-001 will be followed

All disturbed or exposed soil surfaces shall be temporarily stabilized within 30 days of disturbance or exposure, with hay, straw, mulch or any other protective covering and/or method approved by the U.S. Department of Agriculture, Natural Resource Conservation Service, to prevent erosion.

3.3.4. No Discharges to Outstanding Resource Waters

This criterion is not applicable. The Muddy River is not designated as an ORW.

3.3.5 No Discharge for the Impoundment or Detention of Storm Water

The DEP has interpreted dredging of the proposed in-stream sedimentation basins as an "impoundment or detention of storm water for the purpose of controlling sediment," as indicated in their comment letter to MEPA on the DEIR. The proponents do not agree with this interpretation of 314 CMR 9.06(5), as discussed below.

This criterion is not applicable. Impoundment is defined as a storage area, such as a reservoir, which refers to a storage area to collect or store storm water for the purpose of controlling sediment or other pollutants. No storage of storm water is proposed for this project and the discharge of material is not proposed for construction of impoundments to store or collect storm water.

This project involves hydraulic dredging of the Muddy River to increase the capacity of the channel to convey flood flows without overtopping and flooding adjacent public and private properties. As part of this project, the proponent will develop and implement a series of stormwater management BMPs to treat stormwater to minimize the transport of sediment and other pollutants conveyed in runoff from reaching the

river or being distributed throughout the river channel. The final BMP in the proposed series of storm water BMPs is the excavation of in-stream sumps (or sedimentation basins) at strategic locations. The majority of sumps are located at storm drain outlets, as well as other locations as shown on project plans (see figures XXX) to trap sediment conveyed to the river in storm water.

To form the sumps, sediment will be removed from the river (hydraulically dredged) from the channel. These sumps will not impound (i.e. store) storm water, as the flow of river water will not be impeded or impounded at these locations. River water will flow freely through stretches of the river within which basins are dredged. The sumps will decrease the water velocity at these points by increasing the channel's cross-sectional area. Sediment can settle out in the in-stream basins (sumps) because the larger channel cross-sectional capacity at these locations can convey the same flow rate at a reduced velocity compared to a narrower or shallower stretch of the river. Flow rate is a unit of volume per time (e.g. cubic feet per second [cfs]), a channel cross section is measured in area (e.g. square feet), thus, dividing flow rate by the channel area yields flow velocity (e.g. feet per second). Therefore, for a constant flow rate, the water velocity changes as water moves through the river depending upon the channel cross sectional area. Construction of the in-stream basins will increase the channel area, resulting in reduced water velocity through the in-stream basins. Reduced water velocity allows sediment to settle out of the water column rather than to remain in suspension.

3.3.6 Provide Storm Water Discharges with BMPs

No new storm water discharges are proposed as part of this project. A BMP management plan is an important part of this project to minimize the discharge of sediment and other pollutants conveyed in storm water and discharged via existing outfalls. These BMPs are designed to trap sediment and other pollutants in the upstream structural BMPS before reaching the river and to reduce the amount of sediment from being conveyed throughout the river corridor (e.g. in-stream sedimentation basins). Please see Section XX of this FEIR for a thorough discussion of the storm water BMPs and management plan.

3.3.7 No Discharges are Permitted That Would Result in Substantial Adverse Impacts to Surface Waters of the Commonwealth

The project has been designed and measures to mitigate impacts have been planned to avoid adverse impacts to the physical, biological and chemical characteristics of the Muddy River.

3.4 Over-Dredging and Alternatives

As described in Section 2, the purpose of these sediment basins is to provide a basin to collect sediment conveyed to and through the river, and to prevent it from being dispersed throughout the river channel and building up in the channel.

A total of seven in-stream sedimentation basins (or sumps) are proposed for this project. The sumps are proposed in strategic locations to trap sediment discharged with storm water at major outfalls and other areas to slow water velocity to prevent continued sediment transport. The following five sumps are proposed at outfalls:

- The Boston Gatehouses
- Avenue Louis Pasteur (Emmanuel College Drain overflow)
- Downstream of Netherlands Road (Longwood Avenue drain),
- Between Brookline Avenue and The Riverway at Aspinwall Road (Tannery Brook drain), and
- In Leverett Pond at the Village Brook Drain

These are major drainage system outfalls that have the capacity to discharge sediment loads to the river as evidenced by the extensive sediment deposits at the Boston Gate Houses and Village Brook Drain outfalls. Although structural and non-structural BMPs will reduce sediment loads significantly, some sediment is expected to continue to be deposited in the river at storm drain outfalls. Providing sumps at these locations will trap sediment and prevent it from continuing to migrate along the river channel.

The other two sumps are located at the:

- Back Bay Yard (at the culvert inlet) and
- Downstream of the Duck House.

The sediment trap at the Back Bay Yards is proposed to trap sediment before it enters the culverts that convey flow under the roadway network at the Riverway and Park Drive connector. The culverts and proposed open channel flow sections downstream of the culverts are narrow river sections that will convey flow at a higher velocity than the wider Back Bay Fens areas. Therefore, this basin is proposed to trap sediment at this location so it does not remain suspended in the upper Back Bay Fens only to be deposited it the lower Back Bay Fens.

Duck House .....[include additional text]

The project includes the development and implementation of a watershed BMP plan to reduce the sediment load to the river from the tributary area. The watershed BMP is more fully discussed in FEIR Section XX. This plan will be implemented and will decrease the volume of sediment conveyed to the river compared to historic and existing sediment loadings. However, sediment will continue to be conveyed to the river with urban runoff. The in-stream sediment traps will serve as the last BMP in the proposed "treatment train" to reduce the transport of sediment throughout the river channel.

As described in FEIR Section X, the in-stream basins are the last BMP in a series of structural and non-structural BMPs proposed for this project. Watershed BMPs include

[Summarize features here – bullet list]

The in-stream basins are the last BMPs in this treatment train. They are designed to trap sediment carried in runoff as well as sediment washed off eroded riverbanks to prevent it from being distributed along the entire riverbed. Other alternatives to trap sediment prior to discharge to the river include construction of sedimentation basins outside of the river (i.e. along the river banks) or construction of large underground storage tanks. These options would collect sediment conveyed in the drainage system but would not trap sediment from eroding banks. These two alternatives have significant drawbacks as described below.

As discussed in Section 2 of this FEIR, basins along the river would usurp space currently used and most suitable for public enjoyment. Because construction of sedimentation basins along the river's banks is 1) contrary to other project goals, and 2) would remove existing public open space from public use, this alternative was rejected from further consideration.

Underground storage tanks are not feasible for two related reasons: cost and constructability. Construction of underground tanks and restoration of the surface to the Olmstead Plan is significantly more expensive than the small incremental added cost of dredging the in-stream sediment basins during the overall dredging project, and would increase overall project costs by XX%. Furthermore, relocation of underground utilities to accommodate large storage tanks would make construction very difficult and extremely expensive. In the narrow Riverway segment of the Muddy River, there is insufficient space to construct suitably sized basins. Furthermore, additional storage of runoff, either detention basins or underground storage tanks, does not provide a trap for sediment conveyed to the river by bank erosion or other non-point source discharges. Therefore, they could not trap or collect sediment from these other sediment sources.

These alternatives were not considered beyond the preliminary planning stage because they are more costly, more difficult to construct and less efficient than in-stream basins, as described above.

3.5 Impacts and Mitigation Measures for Preferred Dredging Alternative

*The following sections are being developed. The text below presents an outline of our approach**

3.5.1 Water and Sediment Quality Conditions

Assess potential for development of anoxic conditions in sedimentation basin areas

- Assess impacts to benthic biota
- Deeper sediment "cleaner" dredging will expose cleaner substrate for benthic organisms – > Positive impact
- Removing sediment with high BOD and COD that can cause localized DO problems. Less adverse impacts from BOD and COD as this will be removed
- Limnological conditions
- Dissolved oxygen concentrations not expected to be a problem in the basins. The basins are only about 10 feet deep. Depleted oxygen levels in bottom waters observed in deep, stratified lakes not in shallow lakes and ponds. 10 feet deep slow moving river (similar to a pond) should be well mixed, not stratified.
- Deeper water is colder. Colder water can support higher DO concentrations than warmer water.
- Sedimentation basins mostly located at drainage outlets. Storm water should be well oxygenated so that water with higher DO levels will be flowing into the basins.

3.5.2 Construction Period Mitigation Measures

Mixing Zone

Real-time monitoring of turbidity

Develop standard and define "exceedance" of standard

Identify and link and corrective actions to exceedance of standard

Develop capture and release protocol for fish and amphibians impounded in work zone

Working Draft – For Discussion Purposes, Only

Section 2
Wetlands Protection Act Issues

2.1 Introduction

2.1.1 Overview of the Wetlands Protection Act

The Massachusetts Wetlands Protection Act (M.G.L. c. 131, s. 40), "the Act" was passed to protect the wetland resources of the Commonwealth. The Act requires that prior to dredging, filling, removing or altering a wetland resource area, one must first file a Notice of Intent (permit application) and receive an Order of Conditions (wetlands permit). The Order of Conditions must include conditions on the proposed project to preserve and promote the public interests identified in the Act which include:

- Protection of public or private water supply
- Protection of groundwater supply
- Flood control
- Storm damage prevention
- Prevention of Pollution
- Protection of land containing shellfish
- Protection of fisheries
- Protection of wildlife habitat

The Act established local administration of the Act through municipal Conservation Commissions.

The Massachusetts Wetlands Protection Regulations (310 CMR 10.00 *et seq.*) "the Regulations" were developed to implement the Act. The Regulations define the procedures to implement the Act, as well as identifying the wetland resource areas, their boundaries and significance, and establishing performance standards for activities proposed in resource areas. The Regulations establish thresholds for activities that can be administered or permitted by the local Conservation Commission. Projects that exceed said thresholds (e.g. alteration of more than 5,000 square feet of bordering vegetated wetland) cannot be permitted by the Conservation Commission, and require a Variance from the Act. The Commissioner of the Department of Environmental Protection (DEP) issues a Variance. Procedures for a Variance are presented in 310 CMR 10.05.

The Regulations also identify a number of activities that can be authorized by the Conservation Commission, or DEP if the local Order of Conditions is appealed, that exceed the established threshold without the need for a Variance. These activities are commonly referred to as "limited projects." Limited projects are activities that serve to protect, preserve or restore the environment and/or the interests of the Act, such that the benefits of the activity outweigh the potential impacts, and/or the delay of

the benefit through an extensive permitting process may cause greater harm than benefit. Section 10.53 (3) - (6) of the Regulations identify the limited projects and applicable performance standards.

As described in the DEIR, the wetland resource areas were delineated and the delineation of resources was submitted to the Boston and Brookline Conservation Commissions for review and approval via the Abbreviated Notice of Resource Area Delineation process. The Commissions reviewed the boundaries and issued Orders of Resource Area Determinations, copies of which were presented in Appendix __ to the DEIR. Therefore, authorization in accordance with the Act and Regulations will be required to implement this important public project.

The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project (the Project) involves work within and adjacent to state jurisdictional wetland resources (Land Under Waterbodies and Waterway, Inland Bank, Bordering Vegetated Wetlands (BVW), Land Subject to Flooding, Riverfront Area and the 100-foot buffer zone to Inland Bank and/or BVW) and will need approval pursuant to the Act. In accordance with the Certificate in the DEIR, this FEIR will describe the project and its components that are eligible to be authorized by the local Conservation Commission(s) as a limited project, and those components that may require a Variance. For those components that may require a Variance, sufficient information is provided to document that: 1) the project provides an overriding public interest, 2) no other feasible alternative exist, and 3) measures are included to mitigate impacts and protect the interests of the Act.

2.1.2 Summary of Wetland Impacts in Back Bay Fens

Work in the Back Bay Fens involves work within Land Under Water, Inland Bank, BVW, Land Subject to Flooding and Riverfront Area, as well as the 100-foot buffer zone to Inland Bank and/or BVW. The extent and location of these activities is described below in Section ____. The majority of work (i.e. area of alteration) involves dredging Land Under Water to remove accumulated sediment and *Phragmites*, with limited alteration of BVW and Inland Bank for the eradication of *Phragmites* growing within the river channel and restoration of riparian plantings along the river. As documented in the DEIR, these activities will occur within approximately 16.2 acres of Land Under Water, 0.4 acres of BVW and along 13,540 linear feet of Inland Bank.

2.1.3 Summary of Wetland Impacts in the Riverway

To be added

2.2 MEPA Certificate and Draft EIR Comments

Both MEPA and DEP requested that more information be provided in the Final EIR regarding the ability of the project to comply with the Wetlands Protection Act. Specific issues include:

- Which aspects of the project can be permitted at the local level (by the Conservation Commissions of Brookline and Boston) and which will require a variance from the Wetlands Protection Act;
- Where a variance is needed, demonstrate how the project can meet the variance requirements;
- Evaluate alternatives to over-dredging including any alternatives required by DEP and an alternative that relies on enhanced stormwater management/BMP implementation in the Muddy River watershed upstream of the Back Bay Fens;
- Include detailed measures for bank-to-bank dredging to prevent sediment transport; and
- Provide more data on in-stream sedimentation basins and their water quality. Analysis should include future dredging, frequency and cost-effectiveness.

Section 2.3 addresses issues pertaining to Wetlands Protection Act compliance.

Other wetland issues raised by MEPA and Draft EIR reviewers include:

- Include more detail (quantitative and qualitative) on alteration and replication of BVW, including areas of permanent loss and areas of replication;
- Provide more detail on specifics of *Phragmites* removal and replication design; and
- Include an analysis of whether any other invasive species will be removed and methods of removal.

Section 2.4 addresses these other issues.

2.3 Wetlands Protection Act Compliance

Pursuant to the Certificate on the DEIR, this section explores the proper permitting category for the Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project - i.e., limited project status versus variance, or a combination of the two. The project has several objectives that serve to contribute to the interests of the Act (noted in parentheses):

1) Alleviate flooding along the river corridor and reduce flood damage to public and private property (Flood Control and Storm Damage Prevention);

2) Improve the water quality of the river by restoring river hydraulics to original conditions and removing contaminated sediments (Prevention of Pollution and Protection of Fisheries); and

3) Restore river bank plantings to increase plant species diversity and structural diversity to the riparian plant community compared to existing conditions (Protection of Wildlife Habitat).

Therefore, the basic project purpose serves to restore and protect five of the eight interests of the Act.

The following sections discuss the permitting status for project elements and subareas, and presents documentation for DEP to consider when making its decision whether to permit the project under the limited project provisions or to require a variance.

2.3.1 Limited Project Compliance - Dredging

The proposed dredging project will increase the hydraulic capacity of the river and will have very positive effects on the flood control and storm damage prevention interests, while having no adverse effects on the other applicable interests of the Act. Dredging beyond the minimal channel to restore flood flow capacity is proposed and is referred to as bank-to-bank dredging. Bank-to-bank dredging will remove contaminated sediment as well as *Phragmites* stands present along the river. Removal of contaminated sediment is beneficial to pollution prevention and fisheries, while removal of *Phragmites* is beneficial to wildlife habitat. Removal of *Phragmites* beyond the flood flow channel will also serve to remove a seed source to prevent or minimize *Phragmites* colonization of the river corridor.

The DEP has commented that the limited project status likely applies to portions of the project (i.e. Charlesgate and Back Bay Fens dredging and *Phragmites* removal), while the full bank-to-bank dredging in upstream areas most likely will require approval as a Variance project. The limited project activity authorized by 310 CMR 10.53(4) allows projects to proceed that "*will improve the natural capacity of a resource area(s) to protect the interests*" of the Act, provided the activity does not adversely affect the ability of the resource area to protect the other interests of the Act or results in no change (neutral effect) to the capacity of the resource area to protect the other interests of the Act.

There are no thresholds or upper limits for alterations to Land Under Water or Inland Bank above which a Conservation Commission cannot issue an Order of Conditions. However, Conservation Commissions cannot issue an Order of Conditions for the alteration of more than 5,000 square feet of BVW unless the activity is a limited project

activity. As described above, the project will require alteration of more than 5,000 square feet of BVW. Therefore, this work must meet the limited project criteria for approval for this work as an Order of Conditions, otherwise a variance issued by the DEP Commissioner will be required.

The work in the Back Bay Fens and Riverway is proposed as a limited project pursuant to 310 CMR 10.53(4) which allows projects to proceed that "*will improve the natural capacity of a resource area(s) to protect the interests*" of the Act. The work will improve the capacity of these project areas to protect the following interests of the Act:

- Flood control
- Storm damage prevention
- Prevention of pollution
- Protection of fisheries, and
- Protection of wildlife habitat

The project will have no effect, positive or negative, to land containing shellfish; and whereas there are no water supplies in the project area, protection of public or private water supply and protection of ground water supply are not considered to be applicable. The following paragraphs discuss the five interests listed above.

The flood control and storm damage prevention capacity of the Muddy River will be enhanced by dredging and removal of *Phragmites* from the river channel, especially where expanded *Phragmites* stands have reduced the channel cross-sectional width. As documented in Section __ of the DEIR and further described in the Section 4 of the FEIR, dredging will increase the carrying capacity of the river resulting in the reduced flood levels and subsequent reduction of flood damage to public and private property. This is a basic goal of this project.

Bank-to-bank dredging and the resulting removal of *Phragmites* will protect and enhance the interest of pollution prevention. The sediments in the river are documented to contain elevated levels of metals, PAHs, and petroleum hydrocarbons, with PCBs and DDT (and its metabolites) also found frequently. Contaminant concentrations were observed to be higher in surface sediment and to decline with depth (USACE, 2002). A certain amount of sediment is re-suspended during storm events due to increased water flow velocities, thus transporting pollution from one section of the river to downstream areas, and ultimately to the Charles River. Removing contaminated sediment from the riverbed will remove this contamination source and prevent the continued transport of pollution throughout the river which ultimately discharges to the Charles River. Therefore, it is presumed to improve the

pollution prevention interest by removing a pollution source present in the river channel.

Wildlife habitat will be protected through the removal of sediment in bank-to-bank dredging. Appendix D to the Muddy River Boston and Brookline, Massachusetts Draft Decision Document and Environmental Assessment presents the Sediment Quality and Ecological Risk Evaluation (USACE, 2002, unpublished). This assessment utilized multiple lines of evidence to evaluate the Muddy River sediment quality and potential affects to aquatic organisms. Evidence evaluated for this assessment included:

- Comparison of river sediment chemistry to sediment quality guidelines,
- Comparison of river water quality data to ambient water quality criteria,
- Analysis of bioassays (toxicity tests) compared to reference sediment on growth and survival of test organisms (invertebrate and fish test organisms),
- Analysis of fish tissue and comparison to literature based effect values,
- Evaluation of food chain exposure, comparing daily intake of chemicals of potential concern (COPCs) to threshold response values, and
- Evaluation of food chain exposure for piscivorous wildlife.

The Corps utilized several data sets for the completion of the ecological risk assessment to determine: sediment quality, water quality, benthic community structure, fish community, and fish tissue concentrations of COPCs. The benthic community is dominated by pollution tolerant species and the fishery is typical of a warm water fish community. The risk characterization evaluated the river segments identified as Wards Pond, Willow Pond, Leverett Pond, The Riverway, and Back Bay Fens. The results of the ecological risk characterization concluded that the Muddy River sediment posed a risk to biota that utilize the Muddy River. A summary of specific conclusions is presented below.

Sediment is likely to adversely effect benthic organisms and fish at all stations except Wards Pond, based on comparison of river sediment data to sediment quality guidelines and bioassay test results. Sediment concentration of metals, PAHs, pesticides and PCBs exceeded sediment quality benchmarks, and in may cases concentrations exceed the standard by one or more orders of magnitude making adverse impacts to invertebrates probable. Sediment was documented to be toxic to test organisms exposed to sediment from Willow and Leverett Pond, The Riverway and the Back Bay Fens, based on studies conducted in 1995 and 2001.

Food chain modeling identified a risk to avian populations at all stations. The Riverway and Back Bay Fens sediment have the highest concentrations of PCBs and the greatest bioaccumulation of PCBs in fish. Consequently, risk to piscivorous wildlife is highest to animals that feed in these two river segments. Risks are also

present for insectivorous birds, feeding on insects that emerge from aquatic larval life stages.

Fisheries and wildlife habitat interests will be improved by the proposed dredging and replanting of the riparian zone with a more structurally diverse community and increased species diversity comprised of native plantings, respectively. Removal of contaminated sediments from the river ecosystem will expose clean native sediments, or at worst, less contaminated anthroprogenic sediments, thus reducing the adverse impacts to benthic invertebrates and subsequent bioaccumulation and magnification up the food chain. Newly exposed (post-dredging) sediment contaminant levels in most river segments will be significantly lower than existing surface sediment contaminant concentrations (USACE, 2002) based on analysis of sediment cores collected at varying depths below the surface. This will result in lower hazard quotients for COPCs in the future compared to existing conditions. Improved sediment quality is expected to improve conditions for benthic invertebrate survival, growth and reproduction resulting in improved food resources for fishes as well as insectivores wildlife (wildlife feeding on insects that emerge from aquatic larval life stages). In the Back Bay Fens, hazard quotients for mercury increase slightly due to lower total organic carbon, although mercury concentrations decrease with depth. Lower total organic carbon increases bioavailability of mercury. It was noted that several conservative assumptions were included in development of the food chain model which may overstate potential risk, such that actual risk may not increase for mercury. No such phenomenon is anticipated for sediments in the Riverway section and Leverett Pond, post dredging risk from sediment contamination is reduced in these stretches of the river compared to existing conditions.

The existing riparian zone is dominated by *Phragmites* and/or maintained lawn areas with only a few trees or shrubs present in the Back Bay Fens project sub-area. Throughout the Riverway the riparian zone is characterized as a narrow fringe of lawn along the river, bisected by the old carriage paths (now used as walking paths). Beyond the fringing lawn are roadways and, in sections, trolley tracks. Trees are scattered throughout the ribbon of lawn along with scattered patches of shrubs. Much of the open space around Leverett Pond is open lawn area with trees and shrub masses scattered throughout. These conditions provide limited wildlife habitat along the river corridor.

The proposed riparian zone planting plan utilizes native plants (trees, shrubs and herbaceous plants) to replace *Phragmites* and lawn areas resulting in improved structural and species diversity. Increased structural and species diversity will improve the wildlife habitat capacity of the riparian corridor compared to existing conditions. As stated in Pianka, 1983, *"Structurally complex habitats obviously offer a greater variety of different microhabitats than simple habitats do. Because there are more different ways of exploiting them, such spatially heterogeneous habitats usually support more diverse species than homogenous ones do; ..."*. Section 2.4 below presents a discussion of

Phragmites functions and values, and a comparison of replication area functions and values to *Phragmites* functions and values.

2.3.2 Limited Project Compliance - In-Stream Sedimentation Basins

2.3.2.1 Purpose of Basins

Seven in-stream sedimentation basins are proposed – three in the Back Bay Fens area and four in the Riverway area. These basins are proposed to be permitted pursuant to the limited project regulations 310 CMR 10.53(4) as part of the overall dredging activities as described above. The DEP has questioned the ability of these basins to meet the criteria for permitting via 10.53(4). It is the proponent's opinion that these basins can be permitted pursuant to section 10.53(4) of the Regulations because this project element will improve the pollution prevention capacity of the river, while not adversely affecting the other applicable interests of the Act.

The purpose of these sediment basins is to provide a basin to collect sediment conveyed to and through the river, and to prevent it from being dispersed throughout the river channel and building up in the channel.

Sediment can settle out in the in-stream basins because the larger channel cross-sectional capacity at these locations can convey the same flow rate at a reduced velocity compared to a narrower or shallower stretch of the river. Flow rate is a unit of volume per time (e.g., cubic feet per second [cfs]), a channel cross section is measured in area (e.g., square feet), thus, dividing flow rate by the channel area yields flow velocity (e.g., feet per second). Therefore, the water velocity changes as water moves through the river depending upon the channel cross sectional area for a constant flow rate. Construction of the in-stream basins will increase the channel area, resulting in reduced water velocity through the in-stream basins. Reduced water velocity allows sediment to settle out of the water column rather than to remain in suspension. The basins have been strategically placed to settle out suspended solids to reduce flow velocity and trap sediment.

Urban runoff is documented by others (SOURCES – NURP STUDIES, SCHULER, ETC.) to contain contaminants either adsorbed or absorbed to sediment particles. Trapping the sediment in specified locations will prevent the transport of polluted sediment throughout the river which ultimately discharges to the Charles River. In the future, smaller scale dredging projects can be implemented to remove the accumulated sediment from these discrete traps and avoid the need for a large-scale project to remove sediment from the entire river. Therefore, this project element is proposed to improve the capacity of Land Under a Waterway to prevent the widespread distribution of pollution conveyed with sediment contained in runoff, while having no adverse effects to the other interests of the Act.

Land Under a Waterway is presumed significant to protection of public or private water supply, protection of groundwater supply, flood control, storm damage

prevention, prevention of pollution, protection of fisheries, and protection of wildlife habitat. Due to the location of the Muddy River and lack of water supplies in or adjacent to the river, this resource area is not significant to protection of public or private water supply or protection of groundwater supply.

The overall dredging project is designed to improve the capacity of the river to provide flood control, storm damage prevention. These basins will neither further improve nor diminish the improvement provided by the dredging project and are therefore considered to have a neutral impact on these two interests.

This project element will improve the prevention of pollution function of the river as described above by removing a source of pollution present in the river, as well as by trapping sediment carried to the river from urban runoff in discrete areas of the river to prevent the transport of pollution (sediment from urban runoff) throughout the river corridor. The project includes the development and implementation of a watershed BMP plan to reduce the sediment load to the river from the tributary area. This will be implemented and will decrease the volume of sediment conveyed to the river compared to historic and existing sediment loadings. However, sediment will continue to be conveyed to the river with urban runoff. The in-stream sediment traps will serve as the last BMP in the proposed "treatment train" to reduce the transport of sediment throughout the river channel.

2.3.2.2 Back Bay Fens

In the Back Bay Fens, the in-stream basins are located:

- Immediately downstream pf the Avenue Louis Pasteur culvert,
- At the Boston Gatehouses, and
- Downstream of the Duck House.

The Emmanuel College drain overflow discharges runoff at the Avenue Louis Pasteur. Placement of an in-stream basin at this location will trap sediment near the outlet of this drain to prevent its transport further downstream. During wet weather, the river experiences increased flow rates due to this drainage outlet. Providing an in-stream basin at this point will greatly reduce water velocity at the drainage outlet and improve the settling rate in the river at the outlet compared to no in-stream basin at this location.

Two drainage outlets discharge runoff to the river at the Boston Gatehouses. Currently sediment carried in runoff settles out at the Gatehouses creating the large sand flat observed in the river at this location. Construction of an in-stream basin at these outlets will provide a sump to collect sediment discharged from these outlets without reducing the hydraulic capacity of the river at this location. This will serve to trap sediment more efficiently and preserve the flood flow capacity of the river at this station.

The third in-stream basin is located just downstream of the Duck House. Although there is no drainage outlet at this location, it is downstream of a narrow section of the river. Due to the narrower channel cross-section the same rate of river flow will need a flow at a higher velocity compared to river sections with larger hydraulic capacity. Water velocity will increase through the Agassiz Road culvert and narrower channel cross-section in this area. Construction of the in-stream basin downstream of this section will create greater hydraulic capacity thus reducing water velocity and allow sediment to settle out of the water column.

No adverse impact to fisheries is anticipated as a result of the in-stream sediment basins. Water depths in the Back Bay Fens range in depth from two to four feet. The proposed dredging project will increase water depths to 6 to 8 feet. At the proposed in-stream sediment basins, water depths will range from 8 to 10 feet. The DEIR documented the presence of warm water fish species in the Back Bay Fens area including American Eel, Bluegill, Common Carp, Goldfish, Largemouth Bass, Golden Shiner, Pumpkin Seed, and Yellow Perch. These warm water fish species are often found in shallow ponds and slow moving rivers in the Commonwealth. Dredging to the proposed sediment basins depths is within the normal depth ranges for these fishes. As documented by the Corps (USACE, 2002) in general, sediment contamination decreases with depth and therefore the sediment exposed in the in-stream basins (if not native material) will typically be less contaminated than other parts of the river not dredged to native material.

2.3.2.3 The Riverway

Four in-stream sedimentation basins are proposed in the Riverway and other upstream sections of the Muddy River. These are located at storm drain outlets to collect sediment conveyed in runoff, except at the Back Bay Yard where it is located to trap sediment before flow is conveyed through culverts under the park Drive/Riverway connector. In-stream basins are proposed at the:

- Back Bay yard (at the culvert inlet),
- Downstream of Netherlands Road (Longwood Avenue drain),
- Between Brookline Avenue and The Riverway at Aspinwall Road (Tannery Brook drain), and
- In Leverett Pond at the Village Brook Drain.

Construction of the in-stream basins in the Riverway and Leverett Pond are located at drain outlets to settle out sediment conveyed in runoff without loss to the cross-sectional area of the channel restored by this project.

At the Back Bay Yard, the basin is proposed at the culvert inlet to trap sediment before it enters the culvert to prevent sediment accumulation within the culverts. The ACOE has constructed a sedimentation basin, or trap, similar in function to those proposed for this project. A concrete basin was constructed in the stream and

immediately upstream of the culvert inlet to the Town River in Quincy, MA. The purpose of the sedimentation basin or trap is to prevent sediment from accumulating in the downstream culvert since it would be more difficult to remove sediment from the culvert than the trap. The ACOE reports that the trap is working well and preventing sediment from collecting in the culvert.

The ACOE has included the in-stream sedimentation basins as an important element of the project in their Decision Document. Their justification not only includes the environmental benefits of the basins by controlling pollutant levels in the river, but they are included as a critical maintenance element. The ACOE will require the Proponents to accept a maintenance agreement as a condition of funding the project. They have indicated that they consider the in-stream sedimentation basins as a key element in future maintenance. Interim dredging within the basins would lessen future impacts from a major dredging program in the future and maintain the capacity of the flow channel.

No adverse impact to fisheries is anticipated as a result of the in-stream sediment basins. Water depths in the Riverway section of the Muddy River range in depth from two to four feet. The proposed dredging project will increase water depths to 6 to 8 feet. At the proposed in-stream sediment basins, water depths will range from 8 to 10 feet. The DEIR documented the presence of warm water fish species in the Back Bay Fens area including Red Fin Pickerel, Brown Bullhead, Yellow Bullhead, Common Carp, Goldfish, Golden Shiner and Pumpkin Seed. These warm water fish species are often found in shallow ponds and slow moving rivers in the Commonwealth. Dredging to the proposed sediment basins depths is within the normal depth ranges for these fishes. As documented by the Corps (USACE, 2002) in general, sediment contamination decreases with depth and therefore the sediment exposed in the in-stream basins (if not native material) will typically be less contaminated than other parts of the river not dredged to native material.

2.3.4 Ability of In-Stream Basins to Meet Variance Standards

2.3.4.1 Overview

In the event the issuing the authority does not agree with the use of section 10.53(4) for dredging the in-stream sedimentation basins, the construction of the basins would meet the standards for issuance of a variance, as follows:

1) The basins will serve an overriding local, regional or national public interest,
2) There are no other reasonable alternatives to the proposed basins, and
3) That mitigating measures are proposed to protect wetland interests.

The purpose of the in-stream sedimentation basins is to trap sediment conveyed to the river from tributary drainage systems and sediment from bank erosion. Trapping the sediment in discrete locations will prevent the transport of sediment throughout the river channel affording a variety of benefits to the river.

The proposed in-stream sedimentation basins are a key component to the pollution prevention aspect of this project, as described above. In addition to trapping sediment to prevent conveyance of sediment throughout the channel, the basins will increase the project's "life span."

2.3.4.2 Overriding Local and Regional Interests

The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project is a regional project which will improve a public resource located in two different communities and used by millions of residents and visitors each year. This project is proposed by the Boston Parks and Recreation Department and the Town of Brookline, with additional project support offered by the Boston Water and Sewer Commission, Boston PWD, Brookline DPW, the Metropolitan District Commission, the Executive Office of Environmental Affairs, Department of Environmental Management, Massachusetts Emergency Management Agency, Federal Emergency Management Agency, Housing and Urban Development, and the U.S. Army Corps of Engineers. The consortium of organizations behind this project underscores the local and regional interest of this project.

The overall project goals include flood control, water quality and wildlife enhancement and historic renovation and preservation of the Emerald Necklace. The October 1996 and June 1998 storms caused millions of dollars of damage to public and private property. The MBTA Green Line Kenmore Square Station was completely flooded and flooding extended to the Symphony and Arlington Stations and tunnels in between. This flooding disrupted trolley service for the 200,000 plus daily riders of this trolley line until needed repairs were completed. Basement flooding occurred in Brookline homes, area universities and at the Museum of Fine Arts where rare artwork is stored. Furthermore, these flood events nearly closed the neonatal care facilities at Children's Hospital. Water quality and aquatic habitat improvements to the Muddy River will result via the removal of contaminated sediment and implementation of the proposed storm water BMP plan to reduce the volume of sediment and floatable contamination conveyed to the river.

Maintenance of the basins will require periodic small-scale maintenance dredging as part of the BMP management plan, to ensure these features function properly. Financially, these basins will expand the life span of this project and can minimize the costs needed to maintain the flood control improvements resulting from this project compared to eliminating the in-steam sedimentation basins.

Back Bay Fens

The current project involves removal of 80,000 cubic yards of sediment from the Back Bay Fens, approximately 40 percent of the total project (165,000 cubic yards, not including *Phragmites* removal), and will cost approximately $19.4 million of taxpayer money for the design, permitting and implementation of this project. Ongoing operations and maintenance of the BMPs and landscaping improvements will carry additional costs.

The goal of the BMP program is to reduce the discharge of sediment to the Muddy River by 30 percent from the current estimate of 2,500 cubic yards per year to 1,750 cubic yards per year. Based on an average between the current rate and the new rate, the river would lose the flood flow capacity restored by this project over the next 70 years, and would need to be dredged again to restore the river's carrying capacity and flood control functions restored by this project. If the sedimentation basins are constructed totaling 21,150 cubic yards for the entire Muddy River, it would take an additional 10 years at the average deposition rate to fill the basins extending the project life to 80 years. The expected costs would be similar to this project (plus an adjustment for inflation).

The Riverway

Need to insert similar data for the Riverway as presented above for the Back Bay Fens

2.3.4.3 No Other Reasonable Alternatives

As described above, the in-stream basins are the last BMP in a series of BMPs proposed for this project. Up-stream BMPS include

[Summarize features here – bullet list]

The in-stream basins are the last BMPs in this treatment train. They are designed to trap sediment carried in runoff as well as sediment washed off eroded riverbanks to prevent it from being distributed along the entire riverbed. Other alternatives to trap sediment prior to discharge to the river include construction of sedimentation basins outside of the river (i.e. along the river banks) or construction of large underground storage tanks. These options would collect sediment conveyed in the drainage system but would not trap sediment from eroding banks. These two alternatives have significant drawbacks as described below.

The Muddy River flows through the Emerald Necklace Reservation. Another major component of this project is the restoration and preservation of the Emerald Necklace Reservation designed by Fredrick Law Olmstead, Sr. Construction of sedimentation basins along the river and within parks and gardens along the riverbank is not in keeping with the original Olmstead design. Furthermore, basins along the river would usurp space currently used for, and most suitable for, public enjoyment. Because construction of sedimentation basins along the river's banks is 1) contrary to other project goals, and 2) would remove existing public open space from public use, this alternative was rejected from further consideration.

Underground storage tanks are not feasible for two related reasons, cost and constructability. Construction of underground tanks and restoration of the surface to the Olmstead Plan are significantly more expensive than the small incremental added cost of dredging the in-stream sediment basins during the overall dredging project, and would increase overall project costs by XX%. Furthermore, in the Back Bay Fens

river segment, the urban area in which these tanks would need to be built (in the vicinity of Boston Gatehouses and Avenue Louis Pasteur) contains several underground utilities which would need to be relocated to accommodate large storage tanks. This situation makes construction very difficult and extremely expensive. In addition, supplemental storage of runoff, either in detention basins or underground storage tanks, does not provide a trap for sediment conveyed to the river by bank erosion or other non-point source discharges. Therefore, they could not trap or collect sediment from these other sediment sources.

The Riverway is essentially a long narrow corridor along the river bounded by secondary roadways on either side of the river corridor. There is insufficient space to construct suitably sized basins within this narrow park along the river.

These alternatives were not considered beyond the preliminary planning stage because they are more costly, more difficult to construct and less efficient than in-stream basins, as described above.

2.3.4.4 Mitigating Measures Provided to Protect Wetland Interests

The project purpose is several fold, with a major project goal being to improve the flood control and storm damage prevention functions of the Muddy River, as well as to preserve the other interests of the Act. The project is proposed to mitigate flooding along the river during extreme storms, such as the October 1996 storm. In this way the project is itself a mitigation measure. The project as proposed is designed to protect the interests of the Act. The in-stream sedimentation basins, as described above, serve to protect the pollution prevention interest, with no adverse effects to other applicable interests of the Act. Measures are proposed for the construction phase to avoid and mitigate construction impacts to the river. However, once dredging of the in-stream basins is completed no additional mitigation measures are warranted, because no adverse impacts to the riverbed and applicable interests of the Act will be adversely affected by the presence of the basins.

Construction period mitigation measures for dredging, including the dredging of in-stream sedimentation basins include:

- Silt curtains with oil-absorbent booms will enclose the work area. Silt curtains will not be deployed across the river, so as to maintain a passage for fish and other aquatic organisms through the work area.
- Silt curtains and oil absorbent booms will inspected daily and repaired as needed.
- No dredging will occur between March 15 and June 15 due to the fish run.
- A water quality monitoring program will be developed and implemented for the duration of the in-water work. ** Will import the monitoring requirements for the Charlesgate dredging onto this section**

- [To be added]
- [To be added]

2.4 Extent of Wetland Loss and Wetland Replacement

The following sections are being developed, the test below presents an outline of our approach*

2.4.4 Wetland Impacts and Replication

- Describe and document extent and locations of wetland loss – include figures
- Describe and document extent and locations of replacement wetlands – include figures – in the Back Bay Fens, Riverway and Olmstead Parks areas
- Include cross-sections of wetland replication areas (typical) – in the Riverway and Olmstead Parks areas
- Include discussion of *Phragmites* removal areas and replication design – Fenway Area – include typical cross-sections

2.4.5 Wetland Functions and Values

- Describe/document existing F/V for each river section upstream of Fenway Review data presented in DEIR and augment as needed
- Compare functional equivalency or lost to replaced wetlands for each river section upstream of the Fenway

2.4.6 Phragmites Functions and Values

Evaluate *Phragmites* functions and values from the literature, correlate to the project areas – big issues

- size of *Phragmites* patches,
- *Phragmites* poor or lower nutrition value compared to other food sources
- segmentation of patches by roads, culverts etc.,
- active urban land use surrounding Fens, Riverway and other upstream areas. *Phragmites* patches and other landscaped areas provide **only** resource (refuge) in

this urban landscape for avian species and small mammals – cover, nesting sites, food source

- Replacement of Phragmites with other plants will provide cover habitat, nesting sites and food source equal to or better than *Phragmites* stands.

Compare replacement wetland F/V in area areas of *Phragmites* patches to F/V of *Phragmites* birds and mammals will utilize the new resources provided in the restored riparian corridor.

Working Draft – For Discussion Purposes, Only

Section 3
Water Quality Certification Issues

3.1 Overview of Water Quality Certification

Section 401 of the Clean Water Act (CWA) requires that states issue a Certification that any proposed filling of waterways or wetlands will comply with the state's Surface Water Quality Standards. The need for a Water Quality Certification (WQC) is triggered when a federal permit is required for the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands. The Massachusetts DEP developed the WQC Regulations (314 CMR 9.00) to administer Section 401 of the CWA as well as the Massachusetts Clean Water Act (M.G.L. c. 21, sections 26 through 53). The WQC Regulations apply to discharge of dredged or fill material, dredging, and dredge material disposal activities in waters of the U.S. within the Commonwealth [314 CMR 9.01(2)].

The applicable definitions presented in 314 CMR 9.02 are the following:

Discharge of dredged or fill material – Any addition of dredged or fill material into, including any redeposit of dredged material within, water of the United States within the Commonwealth. The term includes, but is not limited to:

(a) direct placement of fill, including any material used for the primary purpose of replacing with dry land or of changing the bottom elevation of a wetland or water body,

(b) runoff from a contained land or water disposal area,

(c) redeposit of dredged material including excavated material which is incidental to any activity including mechanized land clearing, ditching, channelization or other excavation, and

(d) the placement of pilings when it has the effect of fill material.

Dredged material disposal – The transport, placement, or deposition of sediments or other material after dredging.

Dredging – The removal of sediment or other material from land under water below the mean high tide line for coastal waters and below ordinary high water for inland waters. Dredging shall not include activities in bordering or isolated vegetated wetlands.

Section 9.06 of the WQC Regulations presents the evaluation criteria for applications for reviewing the discharge of dredged or fill material. Section 9.07 presents the evaluation criteria for applications for dredging and dredged material disposal. The Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project (the Project) includes dredging the Muddy River to increase the

flood flow capacity of the river to alleviate flooding and flood damage to public and private property. One would expect that the applicable review criteria for this dredging project is Section 9.07. The DEP interpretation of the definitions presented above expands the definition of discharge of dredged material to include incidental fall back of dredged material during sediment removal (dredging) operations. Therefore, the review criteria for both sections of the regulations (Sections 9.06 and 9.07) are determined by DEP to apply to this dredging project.

3.2 MEPA Certificate and Draft EIR Comments

In his Certificate on the DEIR, the Secretary indicates that the FEIR should provide additional discussion of the project's ability to address WQC issues, including the following:

- Demonstrate that project meets the applicable performance standards in the WQC regulations; and
- Provide an alternatives analysis demonstrating that the proposed over-dredging is the preferred alternative.

DEP also had a number of comments pertaining to WQC issues as follows:

- Discuss in detail WQC jurisdiction;
- Demonstrate that no other practicable alternative exists to the creation of in-stream sedimentation basins;
- Address the potential negative biological impacts of in-stream basins;
- Develop site-specific approach to defining mixing zones;
- Discuss suspended solids limit and how the background is defined;
- Outline corrective actions for water quality exceedances and criteria for defining exceedances;
- Allowable TSS or turbidity to be returned to the river should be linked to the reference location TSS or turbidity;
- Individuals hired to capture and release Three-Spine Sticklebacks will need appropriate certifications/licenses; and
- Capture and release any fish or amphibians impounded within the work areas.

3.3 Water Quality Certification Compliance

3.3.1 Introduction

Project elements subject to DEP jurisdiction pursuant to the WQC Regulations include the dredging activities in the river below ordinary high water, as well as any excavation or grading in jurisdictional wetlands including habitat restoration

activities. The key criteria or performance standards from Section 9.06 of the regulations that are applicable to this project include:

- Selection of the least damaging practicable alternative;
- Discharges will not be permitted unless appropriate and practicable steps have been taken to minimize impacts to waters of the U.S.;
- No discharges to Outstanding Resource Waters (ORWs) are permitted except for specific circumstances specified in 9.06(3)(3);
- No discharge is permitted for the impoundment or detention of stormwater for the purpose of controlling sediment or other pollutant attenuation. Discharges may be permitted to manage stormwater for flood control purposes provided there is no other feasible alternative;
- Stormwater discharges shall be provided with the BMPS to attenuate pollutants and require a setback from waters of the U.S.; and
- No discharges will be permitted that meet the review criteria in circumstances where the discharge would result in substantial adverse impacts to surface waters of the Commonwealth.

Section 9.07 of the regulations presents the sediment classification criteria (both physical and chemical quality) of sediment, as well as dredging and DEP approved disposal methods, depending upon sediment quality and disposal location. Dredging and sediment management is presented in Section 4 of this FEIR. The following evaluates the dredging activities pursuant to Section 9.06 of the regulations.

3.3.2. Selection of Least Damaging Practicable Alternative

There are basically two alternatives available to dredge the Muddy River: mechanical dredging by excavator or clamshell or hydraulic dredging. A description of dredging techniques is presented in Section 2 of the DEIR. Based on the review of the various dredging techniques, hydraulic dredging was identified as the most appropriate technique throughout the project area. Hydraulic dredging avoids or greatly minimizes potential impacts associated with mechanical dredging.

Hydraulic dredging minimizes the water quality impacts associated with sediment removal and transport. The suction action collects the majority of suspended sediment generated during sediment removal, greatly reducing the transport of turbid water downstream, compared to mechanical dredging. Pumping the dredged material in enclosed pipelines avoids fall back or spills of dredged material back into the river. Fall back or spills of dredged material into the river during mechanical dredging using a bucket or clamshell is almost unavoidable. Also transport of sediment to the dewatering staging area by pipeline only requires placement and periodic relocation of the pipeline from the work area to a dewatering area. This avoids or greatly minimizes impacts to surrounding environments compared to mechanical dewatering. Along the Muddy River, mechanical dredging would either

require numerous dewatering areas within the reach of the dredging equipment, or transport of sediment by truck to fewer centralized dewatering staging areas. This alternative would require that trucks have access along nearly the entire shoreline of the river for transfer of sediment from the excavation bucket to the truck bed. This would result in excessive alteration of the riverbank compared to placement and periodic relocation of a temporary surface pipeline. Based on this summary evaluation of dredging techniques, it is apparent that the benefits (reduced impacts) of hydraulic dredging favor the selection of hydraulic dredging compared to mechanical dredging.

Whereas hydraulic dredging avoids, or greatly reduces the risk of redeposition of dredged material to the river, one could argue that this technique does not result in the incidental fall back of dredged material and therefore is not subject to Section 401 of the CWA, as no discharge of dredged material is anticipated.

3.3.3. Appropriate and Practicable Steps to Minimize Impacts to Waters of the U.S.

As discussed above, the first step to minimize impacts is to select the least damaging dredging technique. Use of hydraulic dredging avoids many of the potential impacts to waters and wetlands associated with mechanical dredging. Additional measures to minimize impacts during dredging include the following:

- Deploy silt curtains with oil-absorbent booms to enclose the work area. Silt curtains will not be deployed across the river, so as to maintain a passage for fish and other aquatic organisms through the work area.
- Silt curtains and oil absorbent booms will be inspected daily and repaired as needed.
- No dredging will occur between March 15 and June 15.

A water quality monitoring program will be developed and implemented for the duration of the in-water work. Monitoring events and parameters will include:

1. Continuous monitoring of turbidity, both up and downstream within 200 feet of the dredge;

2. Weekly collection of water samples to be analyzed for TPH, total and dissolved lead (dissolved lead shall be less than 1.0 micrograms/l, a site-specific, chronic, water-quality criteria based on 40 mg CaCO3/l measured at the nearest sampling location);

3. Weekly measurements of water temperature, pH, and DO;

4. Weekly sampling of the filtrate for analysis of TSS, total and dissolved lead, and DO. To be suitable for discharge, the filtrate shall have a TSS of less than 40 mg/l, dissolved lead less than 1.0 micrograms/l, and a minimum DO level

of 5 mg/l. The filtrate shall be discharged into the Muddy River within a silt-curtained enclosure equipped with an oil-absorbent boom; and

5. A request for 36-hour turnaround time when samples are delivered to the lab for analysis.

The monitoring and analytical results shall be attached to the weekly Environmental Inspection Report to DEP

Prior to the start of in-water work, any polymer proposed for use shall be identified and information about its aquatic toxicity shall be forwarded to DEP

Any oily material, as evidenced by a visible sheen, released during dredging shall be promptly collected and reused or disposed of at a licensed facility

Dewatering and reuse conditions per DEP Interim Policy Comm-94-007 and Comm-97-001 will be followed

All disturbed or exposed soil surfaces shall be temporarily stabilized within 30 days of disturbance or exposure, with hay, straw, mulch or any other protective covering and/or method approved by the U.S. Department of Agriculture, Natural Resource Conservation Service, to prevent erosion.

3.3.4. No Discharges to Outstanding Resource Waters

This criterion is not applicable. The Muddy River is not designated as an ORW.

3.3.5 No Discharge for the Impoundment or Detention of Storm Water

The DEP has interpreted dredging of the proposed in-stream sedimentation basins as an "impoundment or detention of storm water for the purpose of controlling sediment," as indicated in their comment letter to MEPA on the DEIR. The proponents do not agree with this interpretation of 314 CMR 9.06(5), as discussed below.

This criterion is not applicable. Impoundment is defined as a storage area, such as a reservoir, which refers to a storage area to collect or store storm water for the purpose of controlling sediment or other pollutants. No storage of storm water is proposed for this project and the discharge of material is not proposed for construction of impoundments to store or collect storm water.

This project involves hydraulic dredging of the Muddy River to increase the capacity of the channel to convey flood flows without overtopping and flooding adjacent public and private properties. As part of this project, the proponent will develop and implement a series of stormwater management BMPs to treat stormwater to minimize the transport of sediment and other pollutants conveyed in runoff from reaching the

river or being distributed throughout the river channel. The final BMP in the proposed series of storm water BMPs is the excavation of in-stream sumps (or sedimentation basins) at strategic locations. The majority of sumps are located at storm drain outlets, as well as other locations as shown on project plans (see figures XXX) to trap sediment conveyed to the river in storm water.

To form the sumps, sediment will be removed from the river (hydraulically dredged) from the channel. These sumps will not impound (i.e. store) storm water, as the flow of river water will not be impeded or impounded at these locations. River water will flow freely through stretches of the river within which basins are dredged. The sumps will decrease the water velocity at these points by increasing the channel's cross-sectional area. Sediment can settle out in the in-stream basins (sumps) because the larger channel cross-sectional capacity at these locations can convey the same flow rate at a reduced velocity compared to a narrower or shallower stretch of the river. Flow rate is a unit of volume per time (e.g. cubic feet per second [cfs]), a channel cross section is measured in area (e.g. square feet), thus, dividing flow rate by the channel area yields flow velocity (e.g. feet per second). Therefore, for a constant flow rate, the water velocity changes as water moves through the river depending upon the channel cross sectional area. Construction of the in-stream basins will increase the channel area, resulting in reduced water velocity through the in-stream basins. Reduced water velocity allows sediment to settle out of the water column rather than to remain in suspension.

3.3.6 Provide Storm Water Discharges with BMPs

No new storm water discharges are proposed as part of this project. A BMP management plan is an important part of this project to minimize the discharge of sediment and other pollutants conveyed in storm water and discharged via existing outfalls. These BMPs are designed to trap sediment and other pollutants in the upstream structural BMPS before reaching the river and to reduce the amount of sediment from being conveyed throughout the river corridor (e.g. in-stream sedimentation basins). Please see Section XX of this FEIR for a thorough discussion of the storm water BMPs and management plan.

3.3.7 No Discharges are Permitted That Would Result in Substantial Adverse Impacts to Surface Waters of the Commonwealth

The project has been designed and measures to mitigate impacts have been planned to avoid adverse impacts to the physical, biological and chemical characteristics of the Muddy River.

3.4 Over-Dredging and Alternatives

As described in Section 2, the purpose of these sediment basins is to provide a basin to collect sediment conveyed to and through the river, and to prevent it from being dispersed throughout the river channel and building up in the channel.

A total of seven in-stream sedimentation basins (or sumps) are proposed for this project. The sumps are proposed in strategic locations to trap sediment discharged with storm water at major outfalls and other areas to slow water velocity to prevent continued sediment transport. The following five sumps are proposed at outfalls:

- The Boston Gatehouses
- Avenue Louis Pasteur (Emmanuel College Drain overflow)
- Downstream of Netherlands Road (Longwood Avenue drain),
- Between Brookline Avenue and The Riverway at Aspinwall Road (Tannery Brook drain), and
- In Leverett Pond at the Village Brook Drain

These are major drainage system outfalls that have the capacity to discharge sediment loads to the river as evidenced by the extensive sediment deposits at the Boston Gate Houses and Village Brook Drain outfalls. Although structural and non-structural BMPs will reduce sediment loads significantly, some sediment is expected to continue to be deposited in the river at storm drain outfalls. Providing sumps at these locations will trap sediment and prevent it from continuing to migrate along the river channel.

The other two sumps are located at the:

- Back Bay Yard (at the culvert inlet) and
- Downstream of the Duck House.

The sediment trap at the Back Bay Yards is proposed to trap sediment before it enters the culverts that convey flow under the roadway network at the Riverway and Park Drive connector. The culverts and proposed open channel flow sections downstream of the culverts are narrow river sections that will convey flow at a higher velocity than the wider Back Bay Fens areas. Therefore, this basin is proposed to trap sediment at this location so it does not remain suspended in the upper Back Bay Fens only to be deposited it the lower Back Bay Fens.

Duck House .....[include additional text]

The project includes the development and implementation of a watershed BMP plan to reduce the sediment load to the river from the tributary area. The watershed BMP is more fully discussed in FEIR Section XX. This plan will be implemented and will decrease the volume of sediment conveyed to the river compared to historic and existing sediment loadings. However, sediment will continue to be conveyed to the river with urban runoff. The in-stream sediment traps will serve as the last BMP in the proposed "treatment train" to reduce the transport of sediment throughout the river channel.

As described in FEIR Section 2.X, the in-stream basins are the last BMP in a series of structural and non-structural BMPs proposed for this project. Watershed BMPs include

[Summarize features here – bullet list]

The in-stream basins are the last BMPs in this treatment train. They are designed to trap sediment carried in runoff as well as sediment washed off eroded riverbanks to prevent it from being distributed along the entire riverbed. Other alternatives to trap sediment prior to discharge to the river include construction of sedimentation basins outside of the river (i.e. along the river banks) or construction of large underground storage tanks. These options would collect sediment conveyed in the drainage system but would not trap sediment from eroding banks. These two alternatives have significant drawbacks as described below.

As discussed in Section 2 of this FEIR, basins along the river would usurp space currently used and most suitable for public enjoyment. Because construction of sedimentation basins along the river's banks is 1) contrary to other project goals, and 2) would remove existing public open space from public use, this alternative was rejected from further consideration.

Underground storage tanks are not feasible for two related reasons: cost and constructability. Construction of underground tanks and restoration of the surface to the Olmstead Plan is significantly more expensive than the small incremental added cost of dredging the in-stream sediment basins during the overall dredging project, and would increase overall project costs by XX%. Furthermore, relocation of underground utilities to accommodate large storage tanks would make construction very difficult and extremely expensive. In the narrow Riverway segment of the Muddy River, there is insufficient space to construct suitably sized basins. Furthermore, additional storage of runoff, either detention basins or underground storage tanks, does not provide a trap for sediment conveyed to the river by bank erosion or other non-point source discharges. Therefore, they could not trap or collect sediment from these other sediment sources.

These alternatives were not considered beyond the preliminary planning stage because they are more costly, more difficult to construct and less efficient than in-stream basins, as described above.

3.5 Impacts and Mitigation Measures for Preferred Dredging Alternative

The following sections are being developed. The text below presents an outline of our approach*

3.5.1 Water and Sediment Quality Conditions

Assess potential for development of anoxic conditions in sedimentation basin areas

- Assess impacts to benthic biota
- Deeper sediment "cleaner" dredging will expose cleaner substrate for benthic organisms - > Positive impact
- Removing sediment with high BOD and COD that can cause localized DO problems. Less adverse impacts from BOD and COD as this will be removed
- Limnological conditions
- Dissolved oxygen concentrations not expected to be a problem in the basins. The basins are only about 10 feet deep. Depleted oxygen levels in bottom waters observed in deep, stratified lakes not in shallow lakes and ponds. 10 feet deep slow moving river (similar to a pond) should be well mixed, not stratified.
- Deeper water is colder. Colder water can support higher DO concentrations than warmer water.
- Sedimentation basins mostly located at drainage outlets. Storm water should be well oxygenated so that water with higher DO levels will be flowing into the basins.

3.5.2 Construction Period Mitigation Measures

Mixing Zone

Real-time monitoring of turbidity

Develop standard and define "exceedance" of standard

Identify and link and corrective actions to exceedance of standard

Develop capture and release protocol for fish and amphibians impounded in work zone

CDM

Muddy River Restoration Project

Wetlands Protection Act and Water Quality Certification Issues

October 22, 2002

Bruce Conklin, P.E., CDM
Dwight Dunk, P.W.S., CDM

Wetland Protection Act Issues

- Limited project versus variance
- Permitting of over dredging and benefit of in stream sedimentation basins
- Additional detail on alteration and replication of BVW
- Additional justification on *Phragmites* removal benefits of more biodiversity

Water Quality Certification Issues

- Project meets performance standards for Water Quality Certification regulations
- Alternatives to over dredging and potential impacts
- Mixing zones and water quality exceedances
- Capture and release of fish or amphibians within work areas

Limited Project – Interests of the Act

- Flood control
- Storm damage prevention
- Prevention of pollution
- Protection of fisheries
- Protection of wildlife habitat
- Protection of lands containing shellfish (not applicable
- Protection of groundwater supply (not applicable)
- Protection of public or private water supply (not applicable)

Project Elements Requiring Further Justification

- Back Bay Fens
  - In-stream sedimentation basins
- Riverway and upstream
  - Bank to bank dredging
  - In-stream sedimentation basins

Variance to Wetlands Protection Act

- Overriding local, regional or national public interest
- No reasonable alternatives
- Mitigating measures to protect wetland interests

Water Quality Certification Criteria

- Least damaging alternative
- Minimize impacts from discharge
- No discharges to Outstanding Resource Waters
- No discharge permitted for impoundment or detention of storm water
- Storm water discharges provided with BMPs
- No discharges that meet review criteria but result in substantial adverse impact

Questions and Answers

MEMORANDUM

DATE: October 25, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: Loraine M. Della Porta, CAC Facilitator
John F. Burckardt, Project Manager

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Wednesday, November 6, 2002

Northeastern University Faculty Club.
Kerr Hall, 96 The Fenway

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: Discussion of Draft FEIR -
- Section 5/BMP & Maintenance Plan
- Section 6/Alternatives & Contingency Plan
- Section 8/Maintenance (Partial)

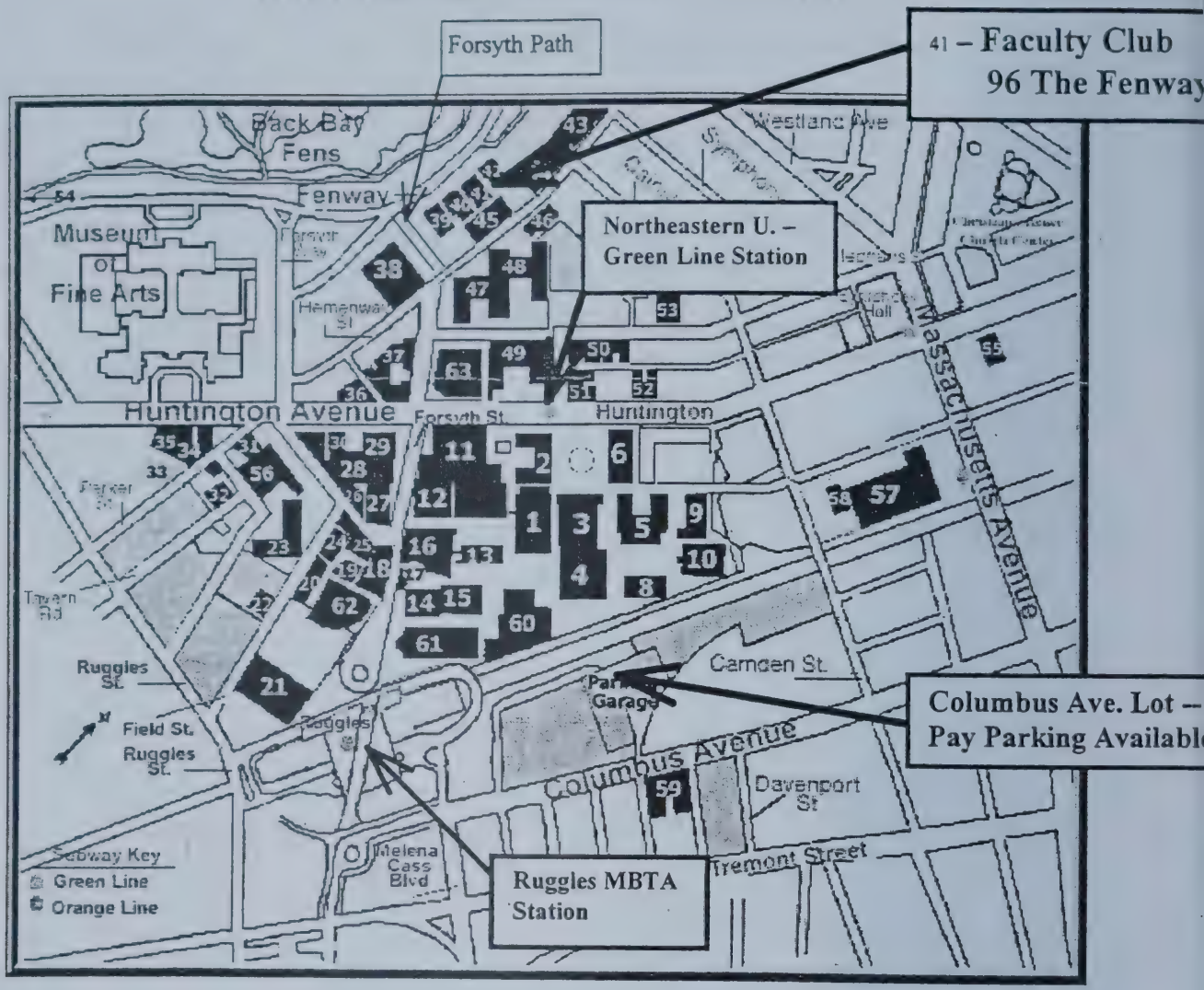
Upcoming CAC Meetings

6:00 p.m. Refreshments
6:05 p.m. Discussion
8:30 p.m. Adjourn

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or Loraine Della Porta (617-727-2224 x 21173) or email projectmanager@muddyriverproject.org.

Directions to
Northeastern University Faculty Club
Kerr Hall, 96 The Fenway

NORTHEASTERN UNIVERSITY CAMPUS



From The Fenway (walking):

The Faculty Club is at 96 The Fenway, between Westland Avenue and the Museum of Fine Arts.

From Green Line (E Train):

Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Right on Forsyth St. and walk to end. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Orange Line:

Exit at Ruggles Station. Use the Forsyth Street exit. Walk 2 blocks, cross Huntington Avenue (traffic light) and continue one more block. Cross Hemenway Street (Stetson Hall, NU dorm on right) and continue along a footpath between Forsyth Dental (#38) on left and apartments on right. Take a right at The Fenway, and the Faculty Club is the 3rd building on the right.

From the Parking Garage:

Cross the tracks using the concourse through Ruggles MBTA station. Next, follow direction (above) from Ruggles Station to the Faculty Club at 96 The Fenway.

MEMORANDUM

Date: November 4, 2002

To: Emerald Necklace Citizens Advisory Committee

From: John F. Burckardt, Project Manger

RE: Update on status of FEIR Section 5 – BMPs

Copies: M. Dyson-BPRD; T. Brady-Brookline; L. Della Porta-MODR; S. Overton-MDC; A. Pugsley-MEPA

Significant progress has been made in the development of the watershed BMP program to support the Muddy River project.

Details on the Proposed 30% Reduction in Sediment Loadings:
A more detailed evaluation of the benefits of source controls, street sweeping and catch basin cleaning has also been completed. The expected reduction in solid loadings to the Muddy River from each component of the source control programs has also been developed.

Details on Specific Locations for Treatment BMPs:
The Center for Watershed Protection's BMP sites and technologies in the Village Brook watershed have received further review and evaluation for their suitability. Also, additional potential BMP sites both inside and outside of the Village Brook watershed have been identified and evaluated for their viability as BMP sites. Additional BMP control technologies have been evaluated for their application in solids removal in the Muddy River watershed. However, the BMP evaluation is not complete at this time. Further evaluations for the sites and technologies are ongoing.

Though the BMP program is not complete, information on potential sites, the BMP technology evaluation, and the overall BMP program will be presented and discussed on Wednesday, November 6, 2002 CAC meeting. Bruce Conklin, Gary Mercer, Ginger Hartman from Camp Dresser & McKee, Inc. will present the information and be prepared to discuss your questions.

Summary of the current schedule of FEIR discussions:

FEIR Topic	CAC Meeting Date	Date Draft FEIR Section Distributed
Section 8 (partial): Management Structure (initial discussion)	September 25, 2002	September 20, 2002
Section 4: Dredging and Sediment Control Issues	October 9, 2002	October 4, 2002
Section 2: Wetlands, including in-stream sedimentation basins Section 3: Water Quality Certification issues	October 22, 2002	October 18, 2002
Section 5: BMPs & Maintenance Plan	November 6, 2002	(status update) November 4, 2002
Section 6: Alternatives/Contingency Plan Section 7: Historic Resources (including Carlton St. Footbridge) Section 8 (partial): Maintenance Section 8 (partial): mountain bike path Section 9: rare species Section 1: Intro	November 20, 2002	

Note: Additional discussion of the management structure is anticipated for one of the November meetings.

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – November 6, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, Assistant Facilitator

John Burckardt, P.E., Project Manager

I. Announcements and Information Sharing

Loraine read a memo that was sent by Isabella and the Friends of the Muddy River to the CAC.

- Hugh Mattison commented on the memo and offered to send out a photograph of the Phragmite problem Isabella referred to and suggested there should be severe restrictions in the area.
- Q. How will the flooding be stopped?
- A. Margret Dyson will ask Isabella to speak with the CAC about this issue. The numbers support dredging of the Muddy River and would like the CAC to discuss this at next meeting.
- Kate suggested Isabella speak with CAC about it and for the CAC not to debate the matter beforehand.
- Hugh would like to see minutes of the meeting.
- John Burckardt offered that dredging is another alternative for this problem.
- Q. Have you had any verbal discussion with the DEP about the dredging?
- A. There are still questions to be answered; they are still including bank to bank dredging. Washington wants additional information to justify the economics of this procedure. The cost per habitat is relatively high.

- Q. Did they give an indication of time?
- A. Expect it before the end of the year. They need guidance on laws that support their position.

*Margaret Dyson told CAC that Toni Pollak has been named the Acting Commissioner of Parks and Recreation.

Project Update. Bruce Conklin, Water Quality Data

The data has been sent out to proponents for distribution. CDM has reviewed the data and determined it is not what they had requested. The data was sent back form more suspended solids, tested 3 layers downstream. CDM determined the contractor did not use the right detection limit. The data exceeded the limit of 1 microgram. Bruce will provide CAC hard copies of the data.

- Q. Did you establish protocol?
- A. Standard Lab tests are being used.
- Q. Would it be possible to make a note on a weekly basis to determine if the problem is wet weather?
- A. The weather is recorded on the day it is taken.

Project Update: Charlesgate, Bruce Conklin

Bruce reported on the permit revisions and removal of cobbles as part of project. Removal of cobbles from under the bridge, on upper layer and sand below. Problem is too small to warrant to be pumped through dredging. The cobbles are scattered in the material below. There is no odor or organic material. Proposed on site meeting with DEP and the Army Corp of Engineers for removal. Proposing a pilot so DEP is comfortable with concerns around odor and drying issues.

- Q. How does this bode for the rest of the project?
- A. We are going back to see if material is similar. Using a hydraulic dredge the material can be removed to check for percentage of cobble.
- Q. If this procedure works will it be done to for other areas?
- A. Yes, presuming the conditions are the same.
- Comment: In other cases the contractor just dumped the material.
- A. It looks like what happened at the Ipswich Bridge. The size depends on whether you can pump it.
- Q. Does the cobble have value?

- A. The cobbles still need to be screened and are costly to dispose. Contractors are reluctant to screen because it is a bigger operation. DEP has given the authority to take it to a landfill and the contractor has already bid to get rid of it.
- Q. How will the weather affect the work?
- A. As long as it doesn't freeze it will work, but freezing will affect its ability to dry.

III. Presentation- Section 5, BMP's & Maintenance Plan, Gary Mercer and Ginger Hartman, CDM

Bruce: The Secretary wants more specific list of BMP's to be included in the DEIR. Significant list of BMP's is being reviewed with proponents regarding operations and maintenance issues. CDM is currently in discussions with proponents on what will work and would like input from the CAC for final BMP Program. There currently is a list of BMP 's that is under consideration.

Power Point Slides presented by Gary Mercer.

Slide, Reduction of Loading Needed

- Q. Does averaging include 100-year flood?
- A. It does, the measure includes the whole range of storms. Life of project could extend beyond the years in graph. Purpose was to look at reduction of sediment over a longer period.

Slide, Analysis Tool

- Analysis tool is used as an accounting system to keep help keep the numbers straight.

Slide, Watershed Information

This is a tool to work through the numbers.

Slide,Map.

- Map used to look at differences in how much loading comes from each area. Used as another accounting tool to look at the benefits of removal.

Slide, Source Control BMPs -

- A. Will this reduction help us to achieve the goal of 750 yards?
- Q. It is not enough to achieve that goal.
- Other controls: are not accounted for specifically in BMP. They are in the main part of plan, but not listed individually.

Slide, Street Sweeping – Sediment Reduction

Chart shows what practices are currently being done and what is expected in 2006. All components of sediment reduction are important.

- Comment: Nothing in Boston residential areas, no towing program and 90% of area is not cleaned. MDC cleans the Fenway and Park drive twice per year.
- Q. Does the catch basin drain into the Muddy River?
- A. It flows toward river, but doesn't go in there.
- Q. What about the drainage from the pipes?
- A. Those connect to the Muddy River conduit. The one in victory gardens goes directly into the river by Park drive, but not the residential areas behind it.
- Q. Would it be possible to provide us with a pie chart indicating what percentage of total sediment source was coming from these areas? What percentage comes from streets, construction sites, etc. , so CAC will know how much effort the proponents should make to clean up these areas?
- A. Gary will provide a pie chart.
- Q. How much energy should the CAC put into getting the MHD to work on these areas? Is it worth the CAC time to pursue this and is there enough of a benefit?
- Comment: We need to know how much is being picked up.
- Gary: Don't think those numbers are being collected, not enough data collected yet.
- Q. Does chart suggest it would be more helpful for more street sweeping? Has there been a meeting with the MHD and when? It might be helpful to know how much salt and sand are being put down.
- Q. Could you breakdown the percentage load?
- A. It would be difficult because the model is based on land use.
- Comment from Kate: It would be helpful to have this information so the CAC knows where to focus our energy.
- Comment from Bruce: If we don't get enough removal it pushes the proponents into making other controls to compensate for low reduction.

Slide, Catch Basin Cleaning – Sediment Reduction

Very similar practices in catch basin sediment cleaning.

- Q. Is there a reason why Boston is not cleaning the basins?

- A. There is a study underway to see how often Boston should be cleaning the basins. They are trying to determine how often they should be cleaned. Some basins contain more load and Boston is trying to simplify the cleaning.

- Comment by Kate: There is greater environmental emphasis on cleaning closer to outlet. I hope to see specific targets emphasized to recommend a higher level of maintenance on areas closer to the river.

- Amy: Program is looking at "Best Practices" of cleaning basins. Don't want to waste resources if it's not necessary. We would like to look at it more closely first.

- Samantha: They target key areas for pumping based on past experience. The MDC has no way of capturing that type of data.

- Q. How are you tracking that to tell us which basin has filled up?

- A. Operation staff gone due to early retirement. We currently have one person who knows which ones are a problem, but I don't know if there is a tracking system in place.

- Betsy: MDC should have log and tracking system.

- Q. Does Brookline have a tracking system for catch basin?

- A. One person checks 14 basins a day. He doesn't go out and measure or monitor each basin.

- Q. Is there a standard basin size?

- A. Yes, mostly within same range.

- Gary: Catch Basins are next line of defense after street sweeping.

Slide, Construction Sites.

- Run off rates higher here. EPA cleanup to have more control on construction sites.

Slide, Stony Brook Conduit

- Stony Brook can go directly to Charles because there is no sewage sediment.

Slide, Source Control Summary

- Q. How do we enforce construction site control?

- A. EPA permit lists violations and plans must be submitted ahead of time. Awareness by proponents to do better controls, and put more mechanisms in place.

- Q. Who will do the enforcement?

- A. Not the EPA – Communities must have a plan on who is going to do the control. In Boston a site plan is filed. The EPA has no real answers about responsibility, they say Boston Water and Sewer are responsible and the BRA has some oversight.

- Q. What assumptions are the numbers based on?

- A. Construction – heavy rains put a lot out, but these numbers have the least support because there is lots of variability and uncertainty. It tends to vary depending on what's going on.

- Q. Will it go below one acre?

- A. Yes.

Slide, Structural BMP's

Comment: on particle separators in public right of ways – something below ground that can be maintained.

BMP's on Public Land- sand filter needs space, looking for CAC's thoughts on working toward structural BMP component.

Slide, BMP's for new or redevelopment sites.

- Q. Is Landmark Center involved?

- A. They were reviewed. Particle receptors were installed.

- Q. Will warrant article be reviewed?

- A. It will go through public process in March, notice will go out and public meetings will be held.

- Comment: The CAC would like that ahead of time.

- Q. What kind of sediment load happens from residential areas?

- A. Parking lots, small lawns, but it is difficult to breakdown because it hasn't been measured. It also varies and can be a pretty big source at times, but difficult to control.

- Comment: There is a need for Public Education Programs about BMP's to make public aware of situation.

Slide, Particle Separators

Comment: Monitoring four particle separators over a year. Measure inflow and build-up to see how existing ones work. Program will be finished by next year.

- Q. Do you expect to have potential sites and costs for installation and maintenance?

- A. Yes.

Slide, Potential BMP Sites

Comment: Maintenance on Private Land – who maintains the land is more challenging and difficult to do. There are schematics to look at for possible BMP's listed in chart. Sand needs higher maintenance and more challenging to site.

- Q. How will you remove 285 cubic yards and how many choices do you have for removal?

- A. A mixture of both (**bio-retention and swale**?) will be used until we figure out what will work best. There is no sense in building until you know what will be the most effective.

Slide Map of Potential Sites

Comment: It is difficult to find open space for these facilities.

Slide, Structural BMP Program

- Particle separators in right-of-ways are in different locations

- BMP's on new or redeveloped private land- ownership should be on private side. This is an unfinished list of sites (see map of potential sites).

Slide, Ongoing BMP Evaluation

- Hugh Mattison inquired if there was any interest in a tour of Charlesgate?

- Margaret Dyson suggest interested CAC members could call or email John or Margaret.

- Final EIR is an update and commitment by proponents to provide maintenance.

- Q. Is there a way of being more specific about sites?

- A. They have specific sites, but some may never happen.

- Q. Will you have a list together?

- A. There is a list of BMP's and Particle Separators, some BMP's may drop out. The goal is to get the list together by early December and we hope to have final list to CAC before the EIR. CAC should receive it after the proponents review it.

- Q. Is there an opportunity to include the number of BMP's?

- A. This process presumes no over dredging. we are trying to capture all loads. This is the plan to reduce load in Muddy River through BMP Program.

- Q. Could this Program be reused to increase removal? Could the list be left big enough?

- A. We have met the goal of 30%, there will be another opportunity to get ones missed. It is a fairly aggressive goal and should be viewed as increasing in longevity of project. Greater benefits on private property being looked at by Boston and Brookline. There is limited open space with great demands on them. Sedimentation basins give greater longevity on projects.

IV Next CAC Meetings

- November 20th Brookline Police Station.

  DEIR, Sections, 6,7,8 and 9

CAC agreed this is an ambitious agenda for one meeting and Loraine has asked members to put aside a second meeting date on either December 4th or December 11th. CAC members will email Loraine which date works best.

It was suggested that the management piece be moved to the top of the agenda on November 20th and the CAC agreed.

The CAC has also asked for a dialogue with Tim Marshall at the next meeting. Margaret Dyson agreed to contact Tim and invite him to the next meeting.

Attachment 1
Meeting Attendance – CAC Members

Name	Affiliation
George Proakis	
Ed Burke	ROW
Frances Allou Gershwin	

Name	Affiliation
Hugh Mattison	Friends of Leverett Pond
Katherine Mathew	Boston Greenspace Alliance
Kate Bowditch	Brookline Conservation Comm.
Fredericka Veikley	Fenway Civic Association
Tina Oddleifson	Brookline Greenspace Alliance

Meeting Attendance – Non-CAC Members

Name	Affiliation
Loraine Della Porta	MODR
Jeannie Adams	MODR
John Burckardt	Project Manager
Bruce Conklin	CDM Associates
Gary Mercer	CDM Associates
Ginger Hartman	CDM Associates
Margaret Dyson	Boston Parks
Betsy Shure Gross	EOEA
Patrice Kish	DEM
Amy Schofield	Boston Water & Sewer
Richard Giordano	

Name	Affiliation
Samantha Overton	MDC
Erin Chute	Brookline Parks
Toni Pollak	Parks Dept
Peter Ditto	Brookline

Claire Flury	Boston Resident

CDM

Muddy River Restoration Project

Best Management Practices for Reduction of Sediment Loadings

CAC Meeting

Bruce Conklin, P.E. *CDM*
Gary Mercer, P.E. *CDM*
Ginger Hartman *CDM*

Date: November 6, 2002

Agenda

- Reduction needed in loadings of sediment
- Source control BMPs
- Structural BMPs
- Next steps

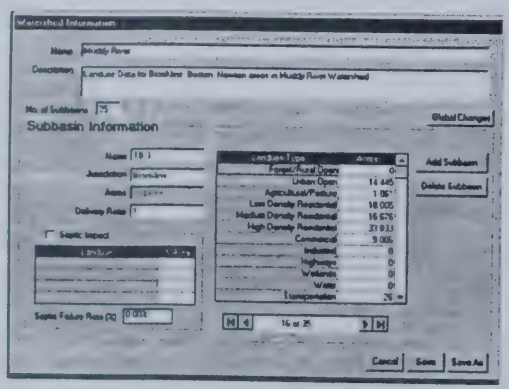


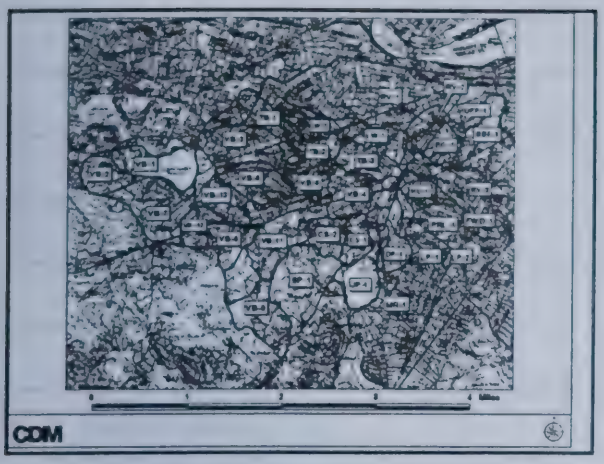
Reduction of Sediment Loading Needed

Year	Loading to Muddy River	Life of Project
2000	2500 cubic yards/year	30 - 50 years
2006	1750 cubic yards/year	50 – 70 years
Reduction	750 cubic yards/year	

Analysis Tool

- Watershed Management Model (WMM)
  - WMM generates annual sediment loadings from the watershed and evaluates the benefits of various BMPs
  - Data requirements for WMM include:
    - Stormwater Event Mean Concentrations (EMC) for sediment by landuse
    - Land use
    - Average annual precipitation
    - Base flow





Source Control BMPs

- Street sweeping
- Catch basin cleaning
- Erosion control at construction sites
- Stony Brook Improvements
- Other controls:
  - Park, turf, and bank and trail maintenance
  - MDC curb repair

Street Sweeping – Sediment Reduction

Owner	2000 Practice	2006 Practice	Sediment Reduction
Boston	Varies by street.	Greater frequency	5 cu yd
Brookline	Once a week Commercial areas every night	No change from 2000	No expected reduction
MDC	Varies by street based on need	Greater frequency	5 cu yd
MHD	Annually in the Spring	No Change	No expected reduction
Newton	--	No change from 2000	No expected reduction
Total		10 cu yd 1.3% of 750 cu yd	

Catch Basin Cleaning – Sediments Reduction

Owner	No. of Catch Basins	2000 Practice	2006 Practice	Sediment Reduction
Boston	161	Varies on location, but typically once every 3 years	Once every 2 years	20 cu yd
Brookline	2120	Varies on location, but typically once or twice a year	No change from 2000	No expected reduction
MDC	90 (est.)	Varies on location, but typically once a year	Once a year	40 cu yd
MHD	83 (est.) Route 9	Once every 2 years	Once a year	12 cu yd
Newton	224	Varies on location, but typically, once or twice a year	No change from 2000	No expected reduction
Total	2722		72 cu yd 9.6% of 750 cy yd	

Construction Sites

- Sediment runoff rates from construction sites are 1000 to 2000 times greater than from natural green space.
- New U.S. EPA Stormwater regulations will control construction sites down to 1 acre (previously it was to 5 acres). Regulations are effective in March 2003.
- Owners/developers required to prepare and submit SWPPP which details erosion and waste controls for site.
- Expect a reduction of solids of 125 cu yd per year with better controls on construction sites. This is 17% of the needed 750 cy yd. per year reduction.



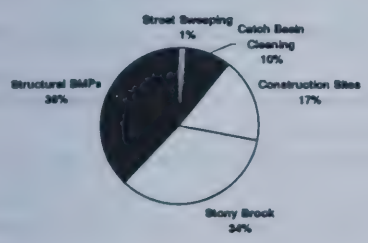
Stony Brook Conduit

- Cleaning of the Stony Brook Conduit will reduce the frequency and volume of discharge of Stony Brook to Muddy River.
- Sewer separation projects in Stony Brook will reduce the 'sediment' loadings in the discharge
- Stony Brook drainage area is 8,360 acres (3 times the drainage area of Muddy River).
- A side benefit of the improvement is a reduction in sediment loadings to Muddy River of 256 cu yd per year from the Stony Brook. This is 34% of the needed 750 cu yd per year reduction.

Source Control Summary

Control	Reduction	Percent of Needed Reduction (750 cu yd)
Street Sweeping	10 cu yd per year	1.3 %
Catch Basin Cleaning	72 cu yd per year	9.6%
Construction Sites Controls	125 cu yd per year	17%
Stony Brook Improvements	256 cu yd per year	34 %
Total	62% of 750 cu yd 38% of 750 cu yd or 285 cu yd is needed from Structural BMPs	

Sediment Reduction



Structural BMPs

- Approach:
  - Regulations on new and redeveloped properties to control sediment loadings from private land.
  - Particle separators in public right-of-ways
  - BMPs on public land

BMPs for New or Re-developed Sites

- Boston: New or re-developed sites are required to:
  - Retain stormwater on site.
  - Construct and maintain BMPs if site has greater then 7,500 sq. ft. of parking. Often the BMP is a particle separator.
  - Examples include: Emmanuel College.
- Brookline: A requirement similar to Boston's is on a warrant article for May 2003 Town Meeting.
- These actions will have owners of private land controlling the sediment loadings from their land and reduce the loadings to the Muddy River.

Structural BMPs – Particle Separators

- Existing (Public)
  - Five particle separators (treatment BMPs) are located in the watershed
  - A monitoring program has been developed to evaluate the effectiveness of these BMPs.
  - Findings from monitoring program are expected in late 2003
- Future
  - Additional particle separators can be located in public right-of-way.

Structural BMPs Evaluation

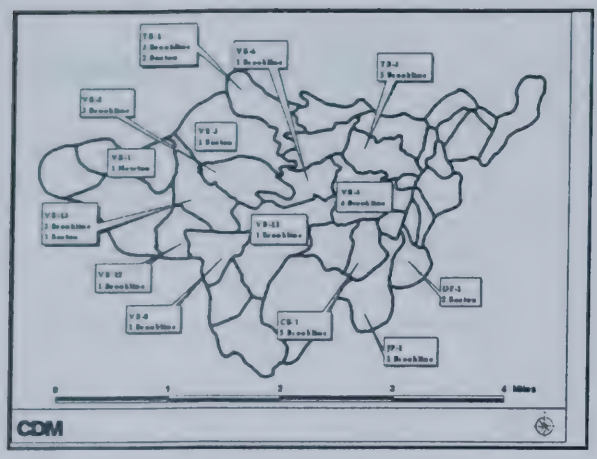
- CDM investigated potential sites and BMP technologies.
- Sites and BMPs included work done by the Center for Watershed Protection.
- A total of approximately 60 sites were considered and 6 types of BMPs
- An initial screening of sites and technologies was performed.
- Additional evaluation is underway to determine viable sites and BMP technologies.

Structural BMPs - Initial Screening

- Initial Screening Criteria
  - Available open area
  - Storm drain nearby
  - Landuse (prefer higher density use)
  - Access
  - Wetlands

Potential BMP Sites

Ownership	Land Type	Drainage Area	Possible BMP
24- Public 10 - Private	Parking Lot Traffic Island Open Space	0.3 to 145 acres Total of 505 acres	Bioretention Swale Perimeter sand filter Underground sand filter Pond



Structural BMP Program

- A structural BMP program is being developed from:
  - List of BMPs on previous slide
  - Particle separators in right-of-ways
  - BMP's on new or redeveloped private land

Ongoing BMP Evaluation

- Site Evaluation
  - Existing uses
- Costs
  - Capital
  - O&M
- Removal Effectiveness
- Ownership
  - Private
  - Public
- Maintenance
  - Clean out/replacement

Questions and Discussion

MEMORANDUM

DATE: November 14, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Wednesday, November 20, 2002
Time: 6:00 pm – 8:30 pm

Brookline Police Station
350 Washington Street
Brookline, MA

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: FEIR Discussions
Section 1 Introduction
Section 6 (partial) Management Structure
Section 7 Historic Resources (including Carlton St. Footbridge)
Section 8 Back Bay Yard (dirt bike path)

If you are unable to attend the next meeting, please call John Burckardt (617-635-4505 x6517) or email projectmanager@muddyriverproject.org.

Directions
Brookline Police Station, 350 Washington Street, Brookline, MA
(617) 730-2222

Directions from the west on Route 9:

Take Route 9 eastbound into Brookline. At the intersection of Route 9 (Boylston Street) and Cypress Street, take a left onto Cypress Street. There is a Mobil gas station and a VW dealership on the corners of this intersection. Follow Cypress Street until the next set of traffic lights. At this set of lights, take a right turn onto Washington Street. The Brookline Police Station is at 350 Washington Street (next door to the Brookline Muncipal Court).

Directions from Boston on Beacon Street:

Take Beacon Street, westbound, into Brookline. At the intersection of Beacon Street and St. Paul Street, take a left onto St. Paul Street. There is a Holiday Inn at the corner of this intersection. Follow St. Paul Street until it ends. Take a right onto Aspinwall Avenue. Go straight through the first set of lights, intersection of Aspinwall Avenue and Harvard Street. The street changes into School Street. Follow School Street until the next set of lights, intersection of School Street and Washington Street. Take a left turn onto Washington Street. The Brookline Police Station is at 350 Washington Street (next door to the Brookline Muncipal Court).

Directions from the west on Beacon Street:

Take Beacon Street, eastbound, into Brookline. At the intersection of Beacon Street and Washington Street, take a right turn onto Washington Street. Follow Washington Street through one set of traffic lights. The Brookline Police Station is at 350 Washington Street (next door to the Brookline Muncipal Court).

For a map of the area go to www.mapquest.com and enter 350 Washington Street, Brookline, MA.

Emerald Necklace Citizen's Advisory Committee
Brookline Police Station
Wednesday, November 20, 2002
6:00 – 8:30 p.m.

Agenda

I. Welcome, Opening Remarks , Introductions & Updates 6:00 - 6:10

***Loraine DellaPorta**, MA Office of Dispute Resolution, Facilitator*
***Jeannie Adams,** MA Office of Dispute Resolution, Assistant Facilitator*
***John Burckardt,** P.E., Project Manager*

- *Review of Agenda*
- *Introductions and Announcements*

II. Project Update, Charlesgate 6:10-6:15
Bruce Conklin, P.E., Camp, Dresser & McKee

III. CAC Meeting (*Members Only)* 6:15-6:30

V. FEIR Discussions 6:30-8:15

Section 6: Management and Maintenance Structure
Section 7: Historic Resources, Carlton Street Footbridge
Section 8: Back Bay Yard
Section 1: Introduction

VI. Wrap up and Agenda Setting 8:15 – 8:30

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – November 20, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine, Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, Asst. CAC Facilitator

John Burckardt, P.E., Project Manager, Boston Parks and Recreation Department

II Discussion with Bruce Conklin, CDM, Project Update

- DEP has given approval to go ahead and excavate riverbed. The contractor had some rainy days. 50 percent of bridges are done, getting material out to landfill. There is a new agreement in place to take the material to a less expensive landfill.
- Water quality data received for the last 2 weeks and discovered lead level is still high. Suspended solids upstream is higher than prior tests (38?) . Downsteam exceeded 46. Bruce thinks it's because of the rain. Lead is coming down from the Victory Garden. Tests were taken to see if lead came off - unsure why it is coming off now.
- Comment from Hugh M: Some bridges are missing capstones.
- Cat fish were spotted upstream from dam
- Site visit to be scheduled

4-5 people have expressed an interest in touring the site. Proposed noon – one on a weekday between now and Thanksgiving or early December.

John Burkhardt asked that the CAC email him if interested in taking a tour.

- Remaining sheetpiling was left near dam. Sheetpiling will be cut off.

III CAC Meeting Discussion

IV Meeting Discussion on Section 6 (full meeting)

- Ed. B – Our role is defined by Secretary Certificate. As oversight to protect public investment. Section 6 does not clarify that at all.

- Lauren – Who is this Oversight Committee (OC) accountable to? Partnerships with different jurisdiction run in various directions. Who or what is this partnership accountable to?

- Arlene M. – Implementation of management structure through creation of permanent oversight committee, we don't feel its reflected in Section 6. p. 6-9 structures table, management structure place should be clearer. Structure needs to be clearer with ENC to be more equal partner.

- Kate – The CAC feels uncomfortable with proposed management structure as written; we're not ready with alternatives. This proposed text does not meet requirements of Secretary's Cert. No oversight role for the OC, its not an equal partner. It's not clear how it functions with other parties. We feel Secretary requirement needs more cooperation. We are not ready to propose specific management structure to you tonight. Needs to be more equal role for management and oversight with proponents. Does true independence exist with OC, as written? Is the project meeting requirement with state and federal permits for management structure? Text deviates from Secretary Cert. CAC was distressed on end of p.6-16 about MDC role. Language is disheartening and needs to be revised.

- George – Secretary may have wanted to know that investment is protected, and that M&M is addressed well. We need to make sure structure in place is written for the long term.

- Ed C. – ENC is not in role to do actions outlined in Sec. 6. ENC is not at a stage where it can assume responsibility in a decade.

- Margaret D.– We need time to think about what you have said before we respond.

- Tom DiMaio – We have worked hard to be inclusive, and we know we can make it work. We have time constraints too and need to know what the CAC wants.

- Erin C. – We have responded to earlier direction that the CAC has given.

- Kate – We need to give more specific direction. The issue of authority is difficult to resolve. We are hopeful to give you suggestion on management structure to include in the FEIR.

- George – We don't have an answer on which structure works for the CAC. Our concern about power sharing, more should fall back to OC to influence.

- Kay – To resolve, lets go back to Secretary Cert. to resolve power sharing and MOC. It appears that the OC should be more instrumental in the management structure.

- Arlene – Power sharing isn't addressed in Section 6. Section on management and maintenance in Secretary's Certificate needs to be reviewed to comply in Section 6. We want the watchdog function formalized.

- Samantha - How would you change the management structure? MDC language was from the DEIR. MDC is not proponent of the project. Maybe we should include more performance standards. Our budget has decreased as much as Boston and Brookline. More resources need to be added when adding more functions.

- Margaret V: How does MDC become a part of this?

- Samantha O. - We are not a proponent of project. MDC did not have tons of resources. Our intent is to meet performance standards. One identity, one justification, need funding to do the work. MDC has no money. There needs to be some equity.

- George – The most effective management and oversight structure allows advocacy to help funding of agencies, we need to make sure our response helps to build political power.

- Arlene L. – If MDC cannot fulfill maintenance roles, we need to make sure we help by cooperating as advocates. Need more cooperative entity.

- Margaret V. – MDC, transparency and accountability. Public involvement could help to build support funding, lobby in legislature, etc.

- Margaret D. – Text includes ENC as independent non-publicly funding advocacy group. Clearly we have not struck the balance with CAC correctly yet.

- Ed B. – We need to be more equal partners with MOC, working together. Shared responsibility and shared oversight so it becomes our project, working together.

- Tom D. – We thought we had struck the balance. We need assurances that we have your support.

- George – We are concerned with burnout. We want to make sure advocacy role works within the OC structure. Make sure advocacy role remains in some organizational structure.

- Kay – Advocacy is by-product of strong OC body, as written in Secretary Cert. OC is instrumental in management and maintenance creation. Text about regular scheduled meetings makes no mention of MOC. Text marginalizes the committee. Be careful not to shift advocacy function of OC from management and maintenance.

- Arlene M. – We are formalizing oversight in the long term too. As oversight grows, so does advocacy. We want citizens as part of oversight of maintenance and management. We aren't going anywhere and we want to be partners at the table. Advocacy is only one piece. Time for a formalized public oversight for feedback on management & maintenance.

- Ed C.: People who come after us should have oversight.

- Frances – We are being a squeaky wheel. MDC needs to make choices.
- Samantha, MDC – We need help getting resources, you can't say MDC is doing nothing. MDC is not unincluding the CAC. We would love to work together.
- Arlene M. – Oversight role has been marginalized in sec. 6.
- Lauren – It's very fair for the MDC to ask the CAC what they would like to see. We would like to see independent oversight committee. Crux of the discussion is to spend time as a committee to propose some alternatives. OC as equal partners.
- George – (Drew boxes as organization chart, to be distributed later). What level of responsibility for various activities falls to whom? When do you bring in advocacy, agencies, and oversight committee? What are the thresholds for moving items up?
- Kate – Offering to communicate further, email or meeting again, to give proponent's suggestions, etc. We will work by phone or email to flesh out specific recommendations/guidance to give to proponents. Issue of Power sharing, requirements of Secretary have not been met.
- Ed C. – Ask 5F committee to see where they fit into section 6.
- Ed B. – Lets email for some days to see how it goes, then maybe meet if necessary.
- Kate – 5F committee is meeting again Monday. We plan to talk about funding staff position, needs to happen by Dec. 1. 5F committee could talk about management structure role.
- Arlene – Chart on p. 6-6, title isn't part of structure. Needs to be revised. Will draw and distribute. It works for PPP. Similar charts could be done for other alternatives.
- Ed C. –A representative of OC should be at the table. OC should be private entity, not ENC.
- ED B. - 5 F as private entity as opposed to ENC. Put time on agenda for Monday.
- Margaret V. – Mystic Valley model would be helpful.
- Bruce, CDM – I have Mystic Valley example for distribution and Samantha has Harbor Islands example.
- Lauren – Are we taking on alternative on management structures or a couple and tweaking them?
- Ed C. – We can have this as a starting place with the understanding that it could be reopen at a later time. Let's go with one model and go with it short term and modify later.
- George – Document should say what the model is and how it works over time.

V Wrap Up and Agenda Setting

- Margaret Dyson would like 24 hours to find a meeting location for Dec. 4th.
- Email Loraine about meeting location, dates, etc.
- Agenda to include Tim Marshall, discussion on sec. 7,8, and 1.
- Hugh – Tim Marshall specs and info was sent out.

Attachment 1
Meeting Attendance – CAC Members

Name	Affiliation
George Proakis	
Ed Burke	ROW
Margaret Van Deusen	Charles River Watershed Assoc.

Name	Affiliation
Hugh Mattison	Friends of Leverett Pond
Katherine Mathew	Boston Greenspace Alliance
Kate Bowditch	Brookline Conservation Comm.
Fredericka Veikley	Fenway Civic Association
Tina Oddleifson	Brookline Greenspace Alliance
Isabella Callahan	Friends of the Muddy River
Arleyn Levee	National Assoc for Olmsted Parks
Arlene Mattison	Emerald Necklace Conservancy
Lauren Meier	
Marion Sabal	Fenway Garden Society

Meeting Attendance – Non-CAC Members

Name	Affiliation
Loraine Della Porta	MODR
Jeannie Adams	MODR
John Burckardt	Project Manager
Bruce Conklin	CDM Associates
Patrice Kish	DEM
Simone Auster	Emerald Necklace Conservancy
Margaret Dyson	Boston Parks
Erin Chute	Brookline Parks
Samantha Overton-Bussell	MDC
Tom DiMaio	Brookline Commissioner
Oliver Boehm	Resident

MEMORANDUM

DATE: November 26, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING LOCATION!

Wednesday, December 4, 2002
Time: 6:00 pm – 8:30 pm

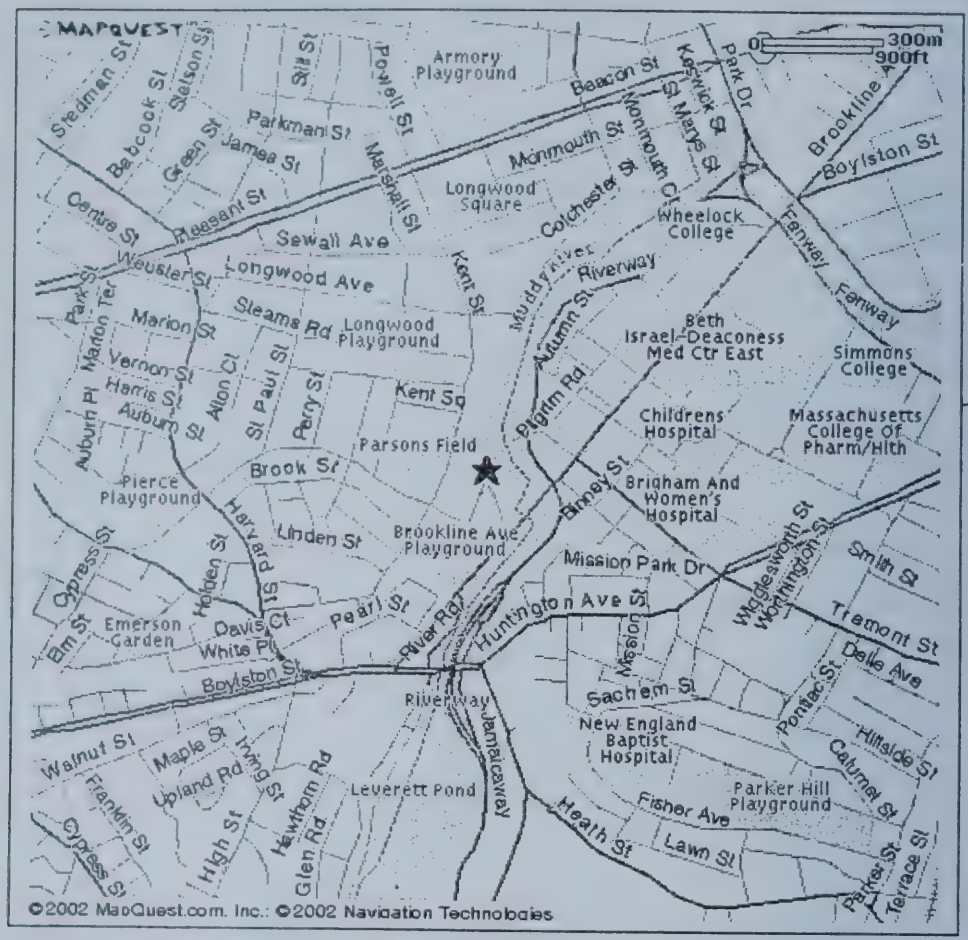
Brookline Water & Sewer Department
Netherlands Road Garage
44 Netherlands
Brookline MA 02445

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: FEIR Discussions
Park Maintenance
Section 1 Introduction
Section 7 Historic Resources (including Carlton St. Footbridge)
Section 8 Back Bay Yard (dirt bike area)

Directions to the Netherlands Road Garage
44 Netherlands, Brookline MA 02445
(617) 730-2088

Emerald Necklace Citizens Advisory Committee Meeting
December 4th, 2002 6:00 PM



The Brookline Water and Sewer Garage is located at 44 Netherlands Road. There are two parking lots at the Garage. If you turn right onto Netherlands Road from the Riverway, enter the first parking lot on your right. Enter the building through the front door from that parking lot. Parking is also available on the surrounding streets.

Driving Directions from Boston: Take Beacon Street towards Brookline. Take a left onto Kent Street, a left onto Aspinwall and a left onto Netherlands Road. From the Riverway take a right onto Netherlands Road

MBTA: Take the Green D "Riverside" Line to the Longwood Stop. Walk to your right along the Riverway and take a right onto Netherlands Road.

MBTA Bus: Take #60 or #65 on Brookline Avenue from Kenmore or at Landmarks Center. Get off at Aspinwall Street (just after crossing the river). Turn off Brookline Ave. and walk up Aspinwall one block; take right on Netherlands Rd. Walk one block up to the garage.

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes – December 4, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine DellaPorta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, CAC Facilitator

John Burckardt, P.E., Project Manager
Boston Parks and Recreation Department

- Review of Agenda
- Margaret Dyson asked to speak quickly before Tim.
- Introductions and Announcements

II Project Update, Charlesgate

Bruce Conklin, P.E., Camp Dresser & McKee

- Past Ipswich Street and are in last 100 feet or so. Should be close to finishing this section within next few days and then will begin work in opposite direction toward staging area. Have removed over half of the material. Yvonne Unger of DEP visited the site and reviewed issue of discharge, specifically high amounts of discharge within silt curtain. Discharge outside of silt curtain is low. She is comfortable with the situation. Methodology of operations will change from mechanical to hydraulic.
- Kate asked about sediment quality. Filter tests were run on sediment quality.
- Kate asked about lead situation. Bruce has not yet asked Evonne this question, but he will give her a call.

Margaret Dyson – Tim's information will supplement the information that was provided in the Draft EIR. The proponent's also asked Tim to present maintenance information in a way that is usable.

III Presentation: Tim Marshall w/ Q & A

- Tim's plan recommends standards to guide maintenance for Muddy River Parks, map the park area and estimates the time needed to meet those standards annually.
- Maintenance plan is organized by geographic sectors of the park.
- The physical areas in the park have been divided into three categories, natural area, paved areas structures.
- The plan is also breaks down the work by season. Each season is 13 weeks.
- Created levels of maintenance, level one being the highest level, to level three being the lowest.
- Tim's plan outlines the performance levels for Park Maintenance:
- Physical areas include: Woodlands, athletic fields, planting areas, gardens, embankment area, watercourse, site furnishings, trash, paved surfaces, structures, playgrounds, graffiti removal.
- Question from Arlene, concern about term "as required." Can this be further defined? Tim has tried to make changes to clarify this.
- Hugh asked whether Tim would recommend using a moisture/water meter, to determine whether an area needs to be watered, due to dry period and raining periods. Tim responded that the staff should be properly trained so that they can make educated decisions.
- Hugh – Level II Woodlands, has there been any analysis of existing conditions to find areas that need more focused attention. Tim responded that Town's will grow into budgets and will eventually get to a point where parks will be maintained as opposed to restored.
- Tim discussed budgets with proponents to determine if it is realistic. Found that budget is a reasonable starting point.
- Ed – the Army Corps requires 2-year maintenance. Will other contractors involved in park restoration be required to do 2-year maintenance. Proponents are working to establish 2-year maintenance for all contractors. Tim commented that ideal situation would be to get some of the money to the MDC and the other proponents to allow the maintenance departments to build staff and a maintenance program.
- Arlene – The contract for the Charlesgate is extremely detailed. Can we expect same level of detail for other contracts for the project? Margaret responded that the proponents need to be detailed when dealing with

contractors due to the nature of the relationship. Arlene commented that the specs should be shown to all levels so that people know what's supposed to be happening. Relationship should be the goal.

- Ed offered a specific example, they mow the garbage in some areas of the park because there are two different contracts for mowing and trash pick-up.
- Sam commented that MDC has looked at the spec and had their staff look at plants in different seasons to help facilitate their training.
- Hugh – are there equipment costs included? Tim responded that the equipment costs have not been included.
- Arlene – question concerning how some BMPs fit in with maintenance tasks. For example, geese fences. Tim responded that BMPs were included in some areas. Bruce commented that some BMPs fit in Tim's plan, and will be covered under the park maintenance budget. Only landscaping issues will be included in Tim's plan and will be covered by the landscaping budget. Catch basin cleaning will be a separate item with its own budget.
- Freddie asked if you need an expert for geese egg removal. Margaret responded that she does not know what the standards are. Hugh provided Margaret with information on training program.
- Sam asked about plowing of paved surfaces. Tim responded that this is included under cleaning.
- After laying out standards, next step was to map out tasks onto sectors. Cleaning and horticultural tasks were separated because they are performed by different entities and to minimize confusion on the maps.
- Margaret asked why bank of river in certain section is level III instead of level 1. Tim is going to check into the logic of this designation.
- Tim asked CAC to review maps and get back to him with comments.
- Next step was convert maps into square footages for each sector. Total square feet of each physical area was totaled for each sector. Then the hours for each maintenance task was calculated. These calculations are averages. Time can be broken down by employees, volunteers, etc.
- George commented that some of the victory garden is labeled as turf.
- Arlene asked if Tim is going to account for the seasonal affect. Arlene asked if he would make some recommendations on this.
- The last step was to break down the hours among the three proponents. Hours at higher standards include the hours for all three levels.

- Hugh – under 4b meadows, some of Kelly Rink is a meadow, and should be backed out.

- Francis recommended adding the names of the different sections of the park so that people can more easily identify them.

- Kate noticed Tim's note that supervisors are not included in staff hours. Tim only included field staff, but not levels above working foreman. Kate asked for supervisors to be included. Margaret Dyson commented that the issue that needs to be resolved is whether having additional foreman in the field will affect the numbers of supervisors.

- Arlene – are other parks systems using GIS to help manage maintenance work. Tim responded that ideal situation is to have GIS. If a bench is broken, there is a tag on it, which gets scanned and goes directly back to an office. It would be beneficial to have technology that can be used by people in the field. Integrating new technology for all three proponents would be a challenge, but it is a good goal for the future.

- Hugh commented that GIS needs to be operated as a working tool and can't be left alone.

- Goerge commented that Tim's plan presents a good way of thinking about park maintenance.

- Sector three maps will be provided in the near future.

- According to Tim's plan, Boston would have to add 8 people, Brookline 2 and the MDC 1 to achieve higher standards.

- Kay – would be interested in seeing models that use GIS outside of Boston.

- How will BMPs fit into maintenance plan. Trail maintenance and some other categories had separate budgets in the DEIR. Some of these will be folded into the maintenance plan. Other categories, such as basin cleaning, will remain as separate budget items.

- Margaret Dyson commented that the park will have a new landscape once the restoration is completed. Ed commented that current baseline is erratic.

- Tim will add jurisdictions onto the map to identify which proponent is responsible for maintenance.

- Kate asked about a maintenance hotline. Margaret responded that there is a hotline currently in place: 635-PARK. Kate suggested that the numbers be better advertised.

- Kate commented that the maintenance plans will be useful to show to the public to help secure funding for the budgets.

- Kate recommended creating a user-friendly map that shows sewer outfalls and other BMPs.

- Simone – plan applies to full restoration as defined in the Muddy River Restoration DEIR. Does the plan go beyond 10 feet? How does the standard compare to other parks? Tim responded that he did not look at the park from the perspective of other parks. He looked at what the Muddy River needed to be well maintained.

- Arlene asked about the decision to not look at both sides of the parkway in this plan. Tim responded that the boundaries were set. Margaret responded that the boundaries are consistent with the master plan.

- Kay – pubic education piece is integral to the process. May want to consider having a separate hotline for the Muddy River project. Simone commented that the ENC is working on this and public education for 2003. People call ENC, ENC provides them with a name from either Boston and Brookline, and ENC follows up. ENC is giving presentations on the Muddy River across the state. 150,000 people are reached each year at the flower show. The ENC is working with the proponents on notifying the public.

IV FEIR Discussion

- Only section that is not on list or hasn't yet been reviewed is Rare Species. The BMP section will be redistributed before December 31.

- Arlene – is CAC going to get back the management structure piece. Bruce responded that this structure has not been determined, still being discussed at a high level.

- CAC was intending to put together a proposal for a management structure. The oversight committee was charged with generating a recommendation. The oversight committee did not have time to accomplish this at their last meeting. George sent faxes of potential management structures.

- CAC said they would reserve dates for additional meetings. What will be on agenda?

- CAC will meet on December 11th to discuss introduction, Back Bay Yard, Historic Resources, Rare Species, Management Structure and MOU update, with the majority of time spent on Back Bay Yard and the Management Structure. It is likely that the MOU will not be ready by the 11th.

- There are two MOUs: one dealing with money and a maintenance MOU between agencies and potentially the ENC. There is a draft of the latter MOU but it may not be applicable after the last meeting.

- George recommending sending comments on the Introduction directly to the proponent, unless there are substantive comments.

- Section 6, Management Structure is not ready and will not be to December 31st.

- Erin commented on the status of the Carlton Street footbridge. Status has not changed, but $600,000 is currently set aside, which can potentially be used to restore the bridge, if voted for in the May town meeting.

- George is concerned about the legal relationship between the Brookline Town meeting and the FROD. Bruce commented that Secretary was clear, that if Brookline wants to demolish the bridge, they can submit a notice of project change. The Secretary can choose to separate the Carlton Footbridge from the project, so that it would not slow down the project.

V. CAC Members Discussion

-

VI. Wrap up and Agenda Setting

- CAC agreed to meet on their own from 6:00 – 7:00 pm on Wednesday, December 11th. Loraine will send notice that general CAC meeting will begin at 7:00 pm.

- For the 12/11 meeting, the CAC agreed to discuss FEIR Sections 7, 8, 1, 9 (to be distributed 12/6) and 10

Attachment 1

Meeting Attendance – CAC Members

Name	Affiliation
George Proakis	Boston Resident
Ed Burke	ROW
Margaret Van Deusen	CRWA
Hugh Mattison	Friends of Leverett Pond
Arlene Mattison	Emerald Necklace Conservancy
Kate Bowditch	Brookline Conservation Comm.
Fredericka Veikley	Fenway Civic Association
Fran Gershwin	Brookline Resident
Isabella Callahan	Friends of the Muddy River
Katherine Mathew	Boston Greenspace Alliance
Frances Kemp	Fenway Civic Association

Meeting Attendance – Non-CAC Members

Name	Affiliation
Tim Marshall	ETM Associates
Loraine Della Porta	MODR
Jeannie Adams	MODR
John Burckardt	Project Manager
Kara Wilbur	Fort Point Associates
Bruce Conklin	CDM
Margaret Dyson	Boston Parks

Name	Affiliation
Samantha Overton-Bussell	MDC
Simone Auster	Emerald Necklace Conservancy
Erin Chute	Brookline Parks & Open Space
Tom DiMaio	Comm. Brookline Parks

MEMORANDUM

DATE: December 5, 2002

TO: EMERALD NECKLACE CITIZENS ADVISORY COMMITTEE

FROM: John F. Burckardt, Project Manager for Muddy River Restoration
Loraine M. Della Porta, CAC Facilitator

RE: **Meeting Notice**

PLEASE NOTE MEETING TIME & LOCATION!

December 11, 2002
Time: 7:00 pm – 8:30 pm

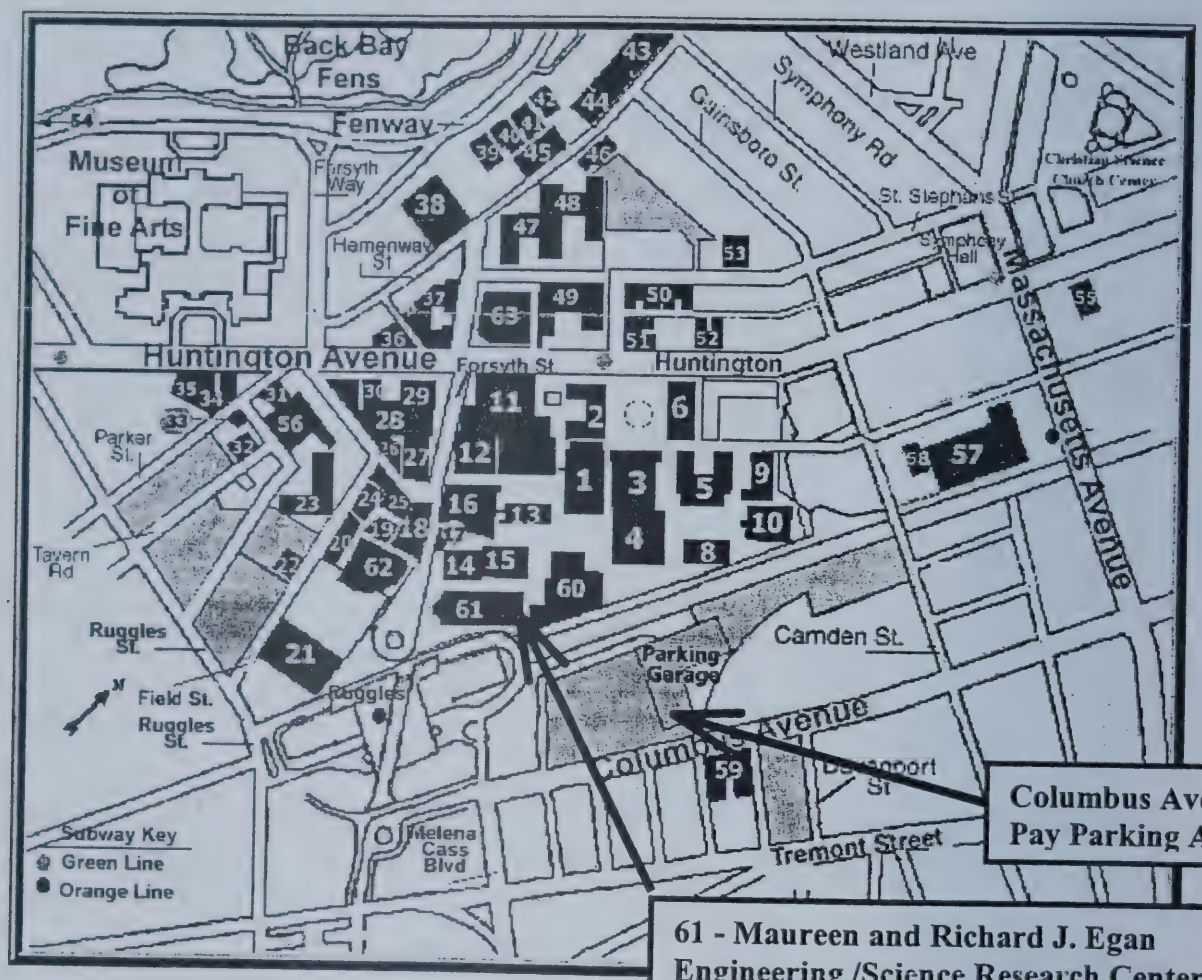
Northeastern University
Egan Engineering/Science Research Center
Forsyth Street (next to Ruggles Station)
Room 240

~ ~ ~ ~ ~ ~ **See Map on Back!** ~ ~ ~ ~ ~ ~

Agenda Topics: FEIR Discussion
Section 7: Historic Resources
Section 8: Back Bay Yard
Section 1: Introduction
Section 9: Endangered Species (To be distributed 12/6)
Section 10: Update on Status of MOUs

If you are unable to attend the next meeting, please call Loraine Della Porta at (617) 727-2224x 21173, or John Burckardt (617-635-4505 x6517)

Directions to
Maureen and Richard J. Egan Engineering /Science Research Center
Room 240
NORTHEASTERN UNIVERSITY CAMPUS



61 - Maureen and Richard J. Egan Engineering /Science Research Center



From The Fenway (walking):
Cut through Forsyth Path and cross Hemenway Street. Follow Forsyth St. to end. Egan Center is on left just before Ruggles Station.

From Green Line (E Train):
Get off at Northeastern U. stop and walk to Forsyth St. end of platform.
Left on Forsyth St. and walk to end. Egan Center is on left just before Ruggles Station.

From the Orange Line:
Egan Center is next to Ruggles Station.

Emerald Necklace Citizen's Advisory Committee
Egan Center – Northeastern University
Wednesday, December 11, 2002
7:00 – 8:30 p.m.

Agenda

I. Welcome, Opening Remarks , Introductions & Updates

7:00 - 7 10

***Loraine DellaPorta**, MA Office of Dispute Resolution, Facilitator*
***Jeannie Adams**, MA Office of Dispute Resolution, Assistant Facilitator*
***John Burckardt**, P.E., Project Manager*

- *Review of Agenda*
- *Announcements*

II. Project Update, Charlesgate

7:10-7:15

Bruce Conklin, P.E., Camp, Dresser & McKee

III. FEIR Discussions

7:15 – 8:15

Section 7: Historic Resources, Carlton Street Footbridge
Section 8: Back Bay Yard
Section 1: Introduction
Section 9: Endangered Species
Section 10: Update on Status of MOUs

VI. Wrap up and Agenda Setting

8:15 – 8:30

Scheduling of Next CAC Meetings
Methodology for FEIR Review

Emerald Necklace Citizens Advisory Committee (CAC)
Summary Notes - December 11, 2002 CAC Meeting

Meeting Attendees

A list of all meeting attendees is included as Attachment 1.

Meeting Agenda

I Welcome, Opening Remarks & Comments Received

Loraine, Della Porta, MA Office of Dispute Resolution, CAC Facilitator

Jeannie Adams, MA Office of Dispute Resolution, Asst. CAC Facilitator

John Burckardt, P.E., Project Manager, Boston Parks and Recreation Department

Agenda Review and Announcements

- John Burckhardt asked if anyone was interested in a site visit to Charlesgate next week. Some board members have expressed interest and John will send an email extending an invitation to folks.

- There was a request by CAC members for a copy of the original document creating the CAC from the Secretary. Loraine will email a copy to all CAC members by next week.

- Arlene asked Bruce to call Erin Chute about comments made at the last CAC meeting on Dec. 4th. We would like her to clarifying her comments on the $600,000 and the restoration of the Carlton Footbridge and how the commitment is being met. Will there be a notice of a project change and would there be reference to this in the FEIR?

- Kate Bowditch presented draft Comments on Section 6 to the CAC and the proponents. CAC has proposed to develop further the last two paragraphs of Kate's draft with more specific detail as to what the CAC would like to see in a management structure. Kate will send this to the Proponents by the end of next week.

- Arlene added that CAC would like to include oversight role in management and maintenance of Park System in Section 6.

II. Bruce Conklin, CDM, Project Update

- Ipswich is nearly done. Work is starting under the bridges on Commonwealth Avenue. Bruce contacted **Kate Linger (?)** on lead samples as requested at the last CAC meeting. Kate looked at the discharge and water quality and determined there is pre-existing lead levels and is satisfied the recommendation on water quality now.

- How do you deal with different conditions on the rest of the project? Dredging has been modified to move material through a hydraulic pump. They take out bladed attachment, use hydraulic dreads to blast sand back in and at the same time it leaves the stone larger than the dredging can move which in turn leaves rocks in the stream. Bruce feels this is the best way - this type of dredging leaves the rocks an it won't impact the capacity of the channel.

- Arlene: Can you give us a update on the bank to bank dredging?

- Bruce: It is mentioned in Chapter? Bank to bank dredging is recommended for the riverbed, he believes it is still a limited project.

- Arlene: What role will the CAC have on the DEP decision?

- Kate B: CAC hopes the DEP will support bank-to-bank dredging.

III FEIR Discussions

- Section 7: Historic ResourcesCAC Meeting Discussion

- Hugh M. expressed that he is not happy with the explanation of the footbridge and he proposed to the CAC that they insert text into the comment letter.

- Arlene M. suggests more specificity on the historic restoration and how the bridge will meet the required conditions. She would like to see something in the FEIR that the CAC could support.

- Hugh M: The Brookline Selectmen could resolve this issue by committing to this restoration in a timely way.

- Kate: CAC's responsibility is to respond. She doesn't think that Brookline will change it's mind.

- Section 8 Back Bay Yard
- Ed: An appropriate use of this sight should be used for Park Maintenance and Public Toilets.
- Hugh added that he would like to see this as an amenity.
- Bruce asked what the Boston Youth Conservation's function is?
- Margaret Van Deusen: They are housed in the Back Bay Yard.
- John B: MBTA has not utilized this portion of the property. Parks department has all information about the acquisition of this parcel of land.
- Tina: What is the T's position?
- Margaret Dyson: The T cannot act on our land and we cannot act on theirs.
- Tina: Will there be a recommendation on what should happen?
- Margaret Dyson: We will sit down with the T and discuss this.
- Kate B: How is this impacting the Park?
- Margaret D.: The concern is the access point into the Park and the effect on the Park. Bikes going up and down are developing paths. Property owners may not be aware that this is an issue.
- Ed: This is an opportunity to create a safe connection to the Bike Path and could be used as an extension.
- Kate B: What is the environmental impact on the area and the trees?
- Tina: If it is managed well there seems like there is an opportunity there.
- Kate B: Does the berm protect the erosion? Should be some way of addressing this in the FEIR so it can come out without being destructive.
- Margaret D: Because of the berm it is not washing into waterway or over path. No real patterns were discovered in soil now, it needs to be watched for environmental impact.
- Arlene: Is there an issue of the health and safety of the trees?
- Margaret D: We have no ability to act on someone else's property.
- Arlene: This should be written in a way that it addresses it's impact on the environment and water.
-

Introduction, Section 1.

- Arlene asked that a statement in the introduction be changed. The introduction says the Park is surrounded by MDC Parkways but it's not. In Brookline streets surround the Park. She would like to see this statement corrected in the introduction.
- Bruce acknowledges this and said it will be corrected.
- Ed suggested it should be adopted as an historic parkway.
- Sam responded that it has been nominated as a metro park system on the National Register Listing.
- Margaret D: The Parkway System is already on the National Register, it is less detailed and needs to be updated for today's standards.
- Sam: There are some references in that piece to nominate whole Emerald Necklace Park System. The state would nominate the Park to the federal level.
- Margaret D: The whole system is on the National Register; It doesn't have an independent designation.
- Ed commented that the parkway has become a freeway.
- Sam: The MDC has given permits to school buses. MBTA says they do not need permission to put buses on arborway and parkways. Some MDC parkways were designed for general traffic.
- Ed: Number of buses are using the parkways as a freeway.
- Sam: MDC said no and is pushing back requests to have buses on parkways. MDC has worked hard to not open it up to this type of traffic. We are trying to encourage smaller vehicles.
- Ed: There is no enforcement
- Sam: There is no MDC enforcement. There should be a piece added in about Olmstead Historic Parkways and this should be part of a general statement on the condition of the Park.
- **Section 9: Endangered Species.**
- Bruce commented that he made a presentation and wrote a section but the proponents were not happy. A summary was written and is being re-crafted now and it will be ready by next week. The Threespine Stickleback, is actually two populations, one in Spring Pond and one in Willow Pond. You can't mix the Stickleback populations. The holding pond at Willow pond was modified during dredging. Stone berm

built to protect fishing and still allow water to get through. We're not changing the water level. National Heritage wants them to enhance the habitat.

- Margaret D: We'll figure out a way to do this and stay in compliance. Approach in Chapter 9, Capture Plan. Consulted with Harvard Professor and suggested the use of minnow traps to capture them. National Heritage supports this idea and finds it permit able because it supports the habitat and variance issues. There is a description of habitat and explanation of why it's better.

- **Section 10: Update and Status of MOU's**

- Kate: Will there be two MOU's.

- Margaret D: There is one for money and one for co-operative management. MOU's are joint efforts.

- Kate: How are you proceeding with this?

- MD: The MOU's are proceeding on parallel tracks. We need answers from the Army Corp about money.

- Sam: Are the MOU's in the FEIR?

- MD: It's too early. The version of the MOU's are broad– not specific yet, so the MOU's could be amended.

- Bruce: No date set for the MOU signature, we will continue to work on it.

- Kate B: We hope we can get a sense of how the Proponent's feel about management structure.

- Margaret D: We want to have it ratified by the commission to make sure there is a commitment to raise it up a level.

- Sam: Brookline Commission is responsible and has the authority.

- Bruce: What goes in January's FEIR is not an issue - we can't change it between now and then.

- Sam: You can do an addendum.

- Margaret D: What you get at the end of the month will be what we send to the Secretary.

- Arlene: Is there anything available by email?

- Bruce: It is only available in hard copy – it is in 2 volumes. There are no other sections until the end of the year. We must have it to you 30 days before it goes to the Secretary.

- Arlene: We need to have the time to look at it.

- Bruce: It will be available sometime between 1/103 and 2/15/03. CAC has through the public comment period – that's assuming 30-day public document. MEPA sometimes gets a request for an extension.

- How will CAC get response on management structure?

- CAC comments are done before the public comment so the public sees what the CAC has said.

- Kate: There is no advantage to that, if you feel strongly about a project send a comment letter and cc everyone. You can make use of the distribution list.

- Kay M: Let's get the public comment done so everyone has the benefit of seeing it.

- Kate: I will circulate management structure to CAC. I also would like to get it to the proponents quickly.

- Kay M: I think the MOC needs to have some voice around this issue and we should address it at the Oversight Committee meeting.

- Kate: The structure should be reflected in the MOU.

IV. Wrap up and Agenda Setting

- **CAC will develop own comments during this 15 day period and come back to discuss it at next meeting**

- **Next CAC Meeting is January 15, 2003. Location to be announced.**

Appendix D

Appendix D
FEIR Distribution List

FEIR CIRCULATION LIST

FEDERAL AGENCIES

Sen. Edward M. Kennedy
US Senator
2400 JFK Federal Building
Boston MA 02203

Sen. John Kerry
US Senator
One Bowdoin Square, Tenth Floor
Boston MA 02114

Congressman Barney Frank
29 Craft Street, Suite 375
Newton MA 02458

Dorothy Reichard
Congressman Frank Office
29 Craft Street
Newton MA 02458

Congressman Stephen Lynch
Joseph Moakley Federal Courthouse
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Boston MA 02210

Congressman Capuano
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Kate Auspitz
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Senate President
State House
Boston MA 02133

Sen. Byron Rushing
State Senator
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Appendix E

Appendix E
Sediment Information

Table E-1
Muddy River Restoration Project
Summary of Soil Sample Analytical Results

Contaminant	Reuse Levels (mg/kg)										
	Lined Ldfills	Unlined Ldfills	SPL-SB5			SPL-SB6			SPL-SB7		
			4 to 6 ft	9 to 11 ft	14 to 16 ft	4 to 6 ft	14 to 16 ft	19 to 21 ft	4 to 6 ft	9 to 11 ft	14 to 16 ft
Total Arsenic	40	40	9.3	7	6.1	ND	ND	ND	ND	13	ND
Total Cadmium	80	30	0.91	0.93	0.69	0.69	0.93	0.62	1.4	2	0.95
Total Chromium	1000	1000	13	12	12	16	28	17	12	30	15
Total Lead	2000	1000	20	45	26	78	17	11	34	64	24
TCLP Lead	NA	NA									
Total Mercury	10	10	ND	0.25	ND	1.3	ND	ND	ND	ND	0.12
Total EPH	5000	2500	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PCBs	<2	<2	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PAHs	100	100	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VPH	10	4	ND	ND	ND	ND	12.8	7.8	1.4	4.8	ND
Total VPH Target			0.17	ND	ND	ND	ND	ND	0.3	0.71	0.23
Reactive Sulfide	500		ND	ND	ND	ND	ND	ND	ND	ND	ND
Reactive Cyanide	250		ND	ND	ND	ND	ND	ND	ND	ND	ND
pH	2 < pH < 12.5		4.6	6.7	7.1	5.1	7.6	7.4	8.3	9.2	8.9
Conductivity	8000 umhos/cm	4000 umhos/cm	80	70	40	30	79	65	61	62	100

Laboratory analyses were performed by Toxikon Corporation in Bedford, Massachusetts

Table E-1 (continued)
Muddy River Restoration Project
Summary of Soil Sample Analytical Results

Contaminant	Reuse Levels (mg/kg)													
	Lined Ldfills	Unlined Ldfills	EC-SB1			EC-SB2C			EC-SB3			EC-SB4		
			4 to 6 ft	9 to 11 ft	14 to 16 ft	4 to 6 ft	14 to 16 ft	20 to 22 ft	4 to 6 ft	9 to 11 ft	14 to 16 ft	4 to 6 ft	9 to 11 ft	19 to 21 ft
Total Arsenic	40	40	ND	ND	ND	10	ND	23	9	14	ND	ND	ND	7
Total Cadmium	80	30	1	0.74	0.81	ND	ND	ND	1.4	0.8	ND	ND	ND	0.83
Total Chromium	1000	1000	13	8.3	10	13	10	59	19	13	9.3	8.8	10	23
Total Lead	2000	1000	26	14	13	68	11	21	56	75	12	8.6	4.7	10
TCLP Lead (mg/L)	NA	NA												
Total Mercury	10	10	ND	ND	0.11	0.16	ND	ND	0.72	0.18	ND	ND	ND	ND
Total EPH	5000	2500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PCBs	<2	<2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PAHs	100	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total VPH	10	4	ND	ND	ND	ND	ND	6.9	ND	ND	ND	ND	ND	ND
Total VPH Target			ND	ND	ND	0.23	ND	ND	0.19	ND	ND	ND	ND	ND
Reactive Sulfide	500		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Reactive Cyanide	250		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pH	2 < pH < 12.5		7	7	6.9	8	7.9	7.6	7	6.9	7.4	7.2	8	8
Conductivity	8000 umhos/cm	4000 umhos/cm	26	4.3	7.3	150	26	13	4.6	13	26	6.5	6	140

Laboratory analyses were performed by Toxikon Corporation in Bedford, Massachusetts

Table E-1 (continued)
Muddy River Restoration Project
Summary of Soil Sample Analytical Results

Contaminant	Reuse Levels (mg/kg)													
	Lined Ldfills	Unlined Ldfills	SPL-SB1			SPL-SB2			SPL-SB3			SPL-SB4		
			9 to 11 ft	14 to 16 ft	19 to 21 ft	4 to 6 ft	14 to 16 ft	19 to 21 ft	4 to 6 ft	11 to 13 ft	14 to 16 ft	4 to 6 ft	14 to 16 ft	19 to 21 ft
Total Arsenic	40	40	ND	ND	15	ND	ND	ND	ND	ND	20	ND	ND	ND
Total Cadmium	80	30	0.98	0.56	1.7	0.93	ND	1.2	ND	0.68	1.7	0.8	ND	0.85
Total Chromium	1000	1000	22	13	38	22	11	32	8.1	11	25	18	9.4	25
Total Lead	2000	1000	99	20	15	210	24	6.8	3.4	4.2	120	37	14	6
TCLP Lead (mg/L)	NA	NA				ND					ND			
Total Mercury	10	10	0.21	ND	ND	0.46	0.17	ND	ND	ND	0.18	ND	ND	ND
Total EPH	5000	2500	ND	ND	ND	730	ND	ND	ND	ND	490	140	ND	ND
Total PCBs	<2	<2	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND
Total PAHs	100	100	49	1.4	ND	122	ND	ND	ND	ND	38.3	1.9	ND	ND
Total VPH	10	4	8.9	ND	ND	1.1	4.2	2	ND	ND	1	14.2	ND	1.2
Total VPH Target			7.1	1.4	0.48	2.5	ND	ND	ND	ND	ND	ND	ND	ND
Reactive Sulfide	500		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Reactive Cyanide	250		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
pH	2 < pH < 12.5		8.8	8.1	6.7	8.2	7.6	7.3	8.1	7.3	7.9	7.7	7.4	8.3
Conductivity	8000 umhos/cm	4000 umhos/cm	58	72	180	160	310	430	4.8	16	280	17	89	130

Laboratory analyses were performed by Toxikon Corporation in Bedford, Massachusetts

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

July 29, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER / BOSTON, MA Order No.: 0007221

Dear MIKE BACHAND,

Toxikon received 11 samples on 7/14/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Toxikon **Date:** *29-Jul-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007221
Date Received: 7/14/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0007221-01A	SPC-SB-2, S-2 4-6	7/13/00
0007221-02A	SPC-SB2, S-4 14-16	7/13/00
0007221-03A	SPC-SB2, S-5 19-21	7/13/00
0007221-04A	TRIP BLANK	7/13/00
0007221-05A	SPC-SB6, S-2 4-6	7/14/00
0007221-06A	SPC-SB6, S-4 14-16	7/14/00
0007221-07A	SPC-SB6, S-5 19-21	7/14/00
0007221-08A	SPC-SB4, S-2 4-6	7/12/00 7:45:00 AM
0007221-09A	SPC-SB4, S-4 14-16	7/12/00 10:00:00 AM
0007221-10A	SPC-SB4, S-5 19-21	7/12/00 10:45:00 AM
0007221-11A	SPL-SB4 TRIP BLANK	7/12/00

Note: SPC should be SPL

Toxikon **Date:** *29-Jul-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007221

CASE NARRATIVE

GCMS confirmation performed on PAHs for samples SPC-SB2,S-2 4-6 and SPC-SB4, S-2 4-6.

Toxikon **Date:** *29-Jul-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007221

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0007221

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ___ No ✓

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.
Surrogate exceedence due to the masking by hydrocarbons present in the sample.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Position: LAB MANAGER

Printed Name: Ann Lezberg Date: 7/29/00

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB-2, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: AK
Specific Conductance	160	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: CR
pH	8.20	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TCLP LEACHED		**SW1311/6010B**				Analyst: A
Lead	ND	0.74		mg/L-dry	1	7/25/00
ICP METALS, TOTAL		**SW6010B**				Analyst: A
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	92	19		mg/Kg-dry	1	7/19/00
Cadmium	0.93	0.95		mg/Kg-dry	1	7/19/00
Chromium	22	0.95		mg/Kg-dry	1	7/19/00
Lead	210	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB-2, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	230	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	500	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	620	100		mg/Kg-dry	1	7/26/00
Naphthalene	2.8	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	1.3	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	3.4	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	4.9	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	18	0.50		mg/Kg-dry	1	7/26/00
Anthracene	6.1	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	20	0.50		mg/Kg-dry	1	7/26/00
Pyrene	17	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	8.8	0.50		mg/Kg-dry	1	7/26/00
Chrysene	10	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	6.1	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	5.7	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	7.8	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	4.5	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	5.9	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	46.8	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	118.0	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	144.5	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	104.0	40-140		%REC	1	7/26/00
MERCURY, TOTAL		**SW7471A**				Analyst: AS
Mercury	0.46	0.11		mg/Kg-dry	1	7/19/00 11:53:53 AM

Qualifiers:

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B - Analyte detected in the associated Method Blank

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB-2, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	32	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB-2, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		**MAVPH**				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	1.1	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	2.5	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	90.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	105.0	70-130		%REC	1	7/21/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon Date: *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	310	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.60	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	17	19		mg/Kg-dry	1	7/19/00
Cadmium	ND	0.95		mg/Kg-dry	1	7/19/00
Chromium	11	0.95		mg/Kg-dry	1	7/19/00
Lead	24	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	42.4	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	98.5	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	77.5	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	88.0	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.17	0.11		mg/Kg-dry	1	7/19/00 11:47:28 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		**D2216**				Analyst: **YK**
Percent Moisture	34	0		wt%	1	7/25/00
SILT, BY H/METER		**X**				Analyst: **CR**
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	2.3	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	1.9	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	4.2	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	95.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	110.0	70-130		%REC	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	430	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	7.30	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	30	19		mg/Kg-dry	1	7/19/00
Cadmium	1.2	0.95		mg/Kg-dry	1	7/19/00
Chromium	32	0.95		mg/Kg-dry	1	7/19/00
Lead	6.8	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	45.7	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	98.5	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	73.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	90.5	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.13		mg/Kg-dry	1	7/19/00 11:57:05 AM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	38	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB2, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	2.0	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	2.9	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	90.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	105.0	70-130		%REC	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	TRIP BLANK
Lab Order:	0007221	**Collection Date:**	7/13/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007221-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	50		µg/L	1	7/18/00
C9-C12 Aliphatics	ND	50		µg/L	1	7/18/00
C9-10 Aromatics	ND	50		µg/L	1	7/18/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	7/18/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	7/18/00
Benzene	ND	2.0		µg/L	1	7/18/00
Toluene	ND	2.0		µg/L	1	7/18/00
Ethylbenzene	ND	2.0		µg/L	1	7/18/00
m+p-Xylene	ND	2.0		µg/L	1	7/18/00
o-Xylene	ND	2.0		µg/L	1	7/18/00
MTBE	ND	2.0		µg/L	1	7/18/00
Naphthalene	ND	2.0		µg/L	1	7/18/00
Surr: FID Surrogate 2,5-DBT	80.0	70-130		%REC	1	7/18/00
Surr: PID Surrogate 2,5-DBT	72.5	70-130		%REC	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007221
Project: MUDDY RIVER / BOSTON, MA
Lab ID: 0007221-05A

Client Sample ID: SPC-SB6, S-2 4-6
Collection Date: 7/14/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	30	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	5.10	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	36	19		mg/Kg-dry	1	7/19/00
Cadmium	0.69	0.95		mg/Kg-dry	1	7/19/00
Chromium	16	0.95		mg/Kg-dry	1	7/19/00
Lead	78	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	58.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	100.0	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	84.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	91.0	40-140		%REC	1	7/26/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-05A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	1.3	0.077		mg/Kg-dry	1	7/19/00 12:00:18 PM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	6.1	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-05A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	100.0	70-130		%REC	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-06A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	79	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.60	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	38	19		mg/Kg-dry	1	7/19/00
Cadmium	0.93	0.95		mg/Kg-dry	1	7/19/00
Chromium	28	0.95		mg/Kg-dry	1	7/19/00
Lead	17	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	51.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	105.5	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	84.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	99.5	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-06A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: AS
Mercury	ND	0.16		mg/Kg-dry	1	7/19/00 1:25:39 PM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		**D2216**				Analyst: YK
Percent Moisture	51	0		wt%	1	7/25/00
SILT, BY H/METER		**X**				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-06A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	11	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	1.8	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	13	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	100.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	110.0	70-130		%REC	1	7/21/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-07A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	65	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	7.40	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	40	19		mg/Kg-dry	1	7/19/00
Cadmium	0.62	0.95		mg/Kg-dry	1	7/19/00
Chromium	17	0.95		mg/Kg-dry	1	7/19/00
Lead	11	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	60.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	99.5	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	85.5	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	90.0	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-07A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.096		mg/Kg-dry	1	7/19/00 1:28:52 PM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	21	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB6, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/14/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-07A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	5.7	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	2.1	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	7.7	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	100.0	70-130		%REC	1	7/21/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/12/00 7:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-08A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: AK
Specific Conductance	17	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: CR
pH	7.70	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: A
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	45	19		mg/Kg-dry	1	7/19/00
Cadmium	0.80	0.95		mg/Kg-dry	1	7/19/00
Chromium	18	0.95		mg/Kg-dry	1	7/19/00
Lead	37	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	140	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	0.81	0.50		mg/Kg-dry	1	7/26/00
Pyrene	1.1	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	60.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	86.0	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	82.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	83.0	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/12/00 7:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-08A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.088		mg/Kg-dry	1	7/19/00 1:32:06 PM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	12	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-2 4-6
Lab Order:	0007221	**Collection Date:**	7/12/00 7:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-08A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
C9-C12 Aliphatics	8.7	1.0		mg/Kg-dry	1	7/21/00
C9-10 Aromatics	5.5	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/21/00
Unadjusted C9-C12 Aliphatics	14	1.0		mg/Kg-dry	1	7/21/00
Benzene	ND	0.10		mg/Kg-dry	1	7/21/00
Toluene	ND	0.10		mg/Kg-dry	1	7/21/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/21/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/21/00
MTBE	ND	0.10		mg/Kg-dry	1	7/21/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/21/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/21/00
Surr: PID Surrogate 2,5-DBT	100.0	70-130		%REC	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/12/00 10:00:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-09A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	89	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	7.40	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	12	19		mg/Kg-dry	1	7/19/00
Cadmium	ND	0.95		mg/Kg-dry	1	7/19/00
Chromium	9.4	0.95		mg/Kg-dry	1	7/19/00
Lead	14	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	46.6	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	101.5	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	78.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	97.5	40-140		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/12/00 10:00:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-09A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.093		mg/Kg-dry	1	7/19/00 1:35:17 PM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		D2216				Analyst: YK
Percent Moisture	14	0		wt%	1	7/25/00
SILT, BY H/METER		X				Analyst: CR
SILT	SEE NARRATIVE	0		%	1	7/26/00
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-4 14-16
Lab Order:	0007221	**Collection Date:**	7/12/00 10:00:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-09A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/22/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
Benzene	ND	0.10		mg/Kg-dry	1	7/22/00
Toluene	ND	0.10		mg/Kg-dry	1	7/22/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/22/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/22/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/22/00
MTBE	ND	0.10		mg/Kg-dry	1	7/22/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/22/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/22/00
Surr: PID Surrogate 2,5-DBT	95.0	70-130		%REC	1	7/22/00

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E - Value above quantitation range

Toxikon Date: *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/12/00 10:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-10A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	130	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.30	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	9.5		mg/Kg-dry	1	7/19/00
Barium	26	19		mg/Kg-dry	1	7/19/00
Cadmium	0.85	0.95		mg/Kg-dry	1	7/19/00
Chromium	25	0.95		mg/Kg-dry	1	7/19/00
Lead	6.0	4.8		mg/Kg-dry	1	7/19/00
Selenium	ND	24		mg/Kg-dry	1	7/19/00
Silver	ND	0.95		mg/Kg-dry	1	7/19/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/26/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/26/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/26/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/26/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/26/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/26/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/26/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/26/00
Surr: Aliphatic Surrogate COD	54.5	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2BN	107.0	40-140		%REC	1	7/26/00
Surr: Aromatic Surrogate OTP	83.0	40-140		%REC	1	7/26/00
Surr: Fractionation Surrogate 2FB	98.0	40-140		%REC	1	7/26/00

Qualifiers:

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J - Analyte detected below quantitation limits

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/12/00 10:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-10A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.10		mg/Kg-dry	1	7/19/00 1:38:25 PM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/26/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/26/00
Aldrin	ND	10		µg/Kg-dry	1	7/26/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/26/00
beta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Chlordane	ND	50		µg/Kg-dry	1	7/26/00
delta-BHC	ND	10		µg/Kg-dry	1	7/26/00
Dieldrin	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/26/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/26/00
Endrin	ND	10		µg/Kg-dry	1	7/26/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/26/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/26/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor	ND	10		µg/Kg-dry	1	7/26/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/26/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/26/00
Toxaphene	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/26/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/26/00
PERCENT MOISTURE		**D2216**				Analyst: **YK**
Percent Moisture	29	0		wt%	1	7/25/00
SILT, BY H/METER		**X**				Analyst: **CR**
SILT	SEE NARRATIVE	0		%	1	7/26/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPC-SB4, S-5 19-21
Lab Order:	0007221	**Collection Date:**	7/12/00 10:45:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007221-10A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
C9-C12 Aliphatics	1.2	1.0		mg/Kg-dry	1	7/22/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/22/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/22/00
Unadjusted C9-C12 Aliphatics	2.2	1.0		mg/Kg-dry	1	7/22/00
Benzene	ND	0.10		mg/Kg-dry	1	7/22/00
Toluene	ND	0.10		mg/Kg-dry	1	7/22/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/22/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/22/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/22/00
MTBE	ND	0.10		mg/Kg-dry	1	7/22/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/22/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/22/00
Surr: PID Surrogate 2,5-DBT	100.0	70-130		%REC	1	7/22/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *29-Jul-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB4 TRIP BLANK
Lab Order:	0007221	**Collection Date:**	7/12/00
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007221-11A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	50		µg/L	1	7/18/00
C9-C12 Aliphatics	ND	50		µg/L	1	7/18/00
C9-10 Aromatics	ND	50		µg/L	1	7/18/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	7/18/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	7/18/00
Benzene	ND	2.0		µg/L	1	7/18/00
Toluene	ND	2.0		µg/L	1	7/18/00
Ethylbenzene	ND	2.0		µg/L	1	7/18/00
m+p-Xylene	ND	2.0		µg/L	1	7/18/00
o-Xylene	ND	2.0		µg/L	1	7/18/00
MTBE	ND	2.0		µg/L	1	7/18/00
Naphthalene	ND	2.0		µg/L	1	7/18/00
Surr: FID Surrogate 2,5-DBT	87.5	70-130		%REC	1	7/18/00
Surr: PID Surrogate 2,5-DBT	77.5	70-130		%REC	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

1 OF 2

WORK ORDER #: [illegible]

DUE DATE 8 x 7 26 00

COMPANY: CAMP DRESSER & MCKEE
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE, MA 01876
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: CAROLE KISLICH / MIKE BACHAND
PROJECT ID/LOCATION: MUDDY RIVER / BOSTON, MA

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH - w/ TARGET PAH's	EPH w/ TARGET PAH's	RCRA 8 METALS	PESTICIDES / PCB's	CONDUCTANCE	WATER CONTENT	TCLP METALS (ONLY WHERE METALS EXCEED)	REACTIVITY, IGNITABILITY, SULFIDE & CYANIDE	CORROSIVITY	SEMI-VOA'S & HYPALON 8100	SPECIAL INSTRUCTIONS / COMMENT
	SPL-SB-2																		
1	S-2 4-6	SOIL	1L	G	1	7/13		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB2																		
2	S-4 14-16	SOIL	1L	G	1	7/13		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB2																		
3	S-5 19-21	SOIL	1L	G	1	7/13		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB2																		
1	S-2 4-6	SOIL		G	1	7/13		MEOH	✓										
	SPL-SB2																		
2	S-4 14-16	SOIL		G	1	7/13		MEOH	✓										
	SPL-SB2																		
3	S-5 19-21	SOIL		G	1	7/13		MEOH	✓										
	SPL-SB2																		
4	TRIP BLANK			G	1			HCL	✓										
	SPL-SB6																		
1	S-2 4-6	SOIL	1L	G	1	7/14		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB6																		
2	S-4 14-16	SOIL	1L	G	1	7/14		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB6																		
3	S-5 19-21	SOIL	1L	G	1	7/14		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SPL-SB6																		
5	S-2 4-6	SOIL		G	1	7/14		MEOH	✓										
	SPL-SB6																		
6	S-4 14-16	SOIL		G	1	7/14		MEOH	✓										
	SPL-SB6																		
7	S-5 19-21	SOIL		G	1	7/14		MEOH	✓										

SAMPLED BY: M. BACHAND
DATE: 7.13.00
TIME: 1.00 p.m.

RELINQUISHED BY:
DATE: 7.14.00
TIME: 12.10 p.m.

RELINQUISHED BY:
DATE: 7.14.00
TIME: 15.45

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY:
DATE: 7.14.00
TIME: 12.10

RECEIVED FOR LAB BY:
DATE: - -
TIME: - -

COOLER TEMPERATURE

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

2 OF 2

WORK ORDER #: 00 07 221

DUE DATE: 7 26 00

COMPANY: CAMP DRESSER & MCKEE
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE MA 01876
PHONE #: (617) 452-6000 FAX #: (617) 452-8088
P.O. #:
PROJECT MANAGER: CAROLE KESLICK/MIKE BACHAND
PROJECT ID/LOCATION: MUDDY RIVER/BOSTON, MA

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH - w/ TARGET PAHs	EPH w/ TARGET PAHs	RCRA 8 METALS	PESTICIDES / PCB's	CONDUCT, RUCB	TCLP METALS	REACTIVITY, SULFIDE & CYANIDE EXCLUDED	CORROSIVITY	PERCENT WATER	SOLIDS & HYDROMETER	SPECIAL INSTRUCTIONS / COMMENTS
8	SPL-SB4 S-2 4-6	SOIL	1L	G	1	7/12	7:45 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
9	SPL-SB4 S-4 14-16	SOIL	1L	G	1	7/12	10:00 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
10	SPL-SB4 S-5 19-21	SOIL	1L	G	1	7/12	10:45 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
8	SPL-SB4 S-2 4-6	SOIL		G	1	7/12	7:45 AM	MEOH	✓										
9	SPL-SB4 S-4 14-16	SOIL		G	1	7/12	10:00 AM	MEOH	✓										
10	SPL-SB4 S-5 19-21	SOIL		G	1	7/12	10:45 AM	MEOH	✓										
11	SPL-SB4 TRIP BLANK			G	1			HCL	✓										TRIP BLANK
5																			
6																			
7																			

SAMPLED BY: M BACHAND
DATE: 7 - 12 - 00
TIME: 1 - 00 - PM

RELINQUISHED BY:
DATE: 7 - 14 - 00
TIME: 12 - 10 - PM

RELINQUISHED BY:
DATE: 7 - 14 - 00
TIME: 15 - 45

QUOTATION #:

RECEIVED BY:
DATE: 7 - 14 - 00
TIME: 12 - 10 - PM

RECEIVED FOR LAB BY:
DATE: - -
TIME:

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or susp[illegible]

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 23, 2000

CAROLE KISLICK/MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER/BOSTON Order No.: 0008017

Dear CAROLE KISLICK/MIKE BACHAN

Toxikon received 4 samples on 8/1/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD

Toxikon **Date:** *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER/BOSTON
Lab Order: 0008017
Date Received: 8/1/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0008017-01A	SPL-SB1, S-3 9-11	7/28/00
0008017-02A	SPL-SB1, S-4 14-16	7/28/00
0008017-03A	SPL-SB1, S-5 19-21	7/28/00
0008017-04A	SPL-SB1	7/28/00

Toxikon **Date:** *14-Aug-00*

CLIENT: CDM
Project: Muddy River / Boston
Lab Order: 0008017

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0008017

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Position: Lab Manager

Printed Name: Carl Cooper Date: 8/23/00

Toxikon **Date:** *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0008017
Project: MUDDY RIVER/BOSTON
Lab ID: 0008017-01A

Client Sample ID: SPL-SB1, S-3 9-11
Collection Date: 7/28/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	58	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		SW9045B				Analyst: AK
pH	8.80	0		pH Units-dry	1	8/10/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	9.0		mg/Kg-dry	1	8/4/00
Barium	50	18		mg/Kg-dry	1	8/4/00
Cadmium	0.98	0.90		mg/Kg-dry	1	8/4/00
Chromium	22	0.90		mg/Kg-dry	1	8/4/00
Lead	99	4.5		mg/Kg-dry	1	8/4/00
Selenium	ND	22		mg/Kg-dry	1	8/4/00
Silver	ND	0.90		mg/Kg-dry	1	8/4/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	120		mg/Kg-dry	1	8/9/00
C19-C36 Aliphatics	ND	120		mg/Kg-dry	1	8/9/00
C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/9/00
Unadjusted C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/9/00
Naphthalene	5.6	0.58		mg/Kg-dry	1	8/9/00
2-Methylnaphthalene	2.8	0.58		mg/Kg-dry	1	8/9/00
Acenaphthylene	ND	0.58		mg/Kg-dry	1	8/9/00
Acenaphthene	4.7	0.58		mg/Kg-dry	1	8/9/00
Fluorene	4.5	0.58		mg/Kg-dry	1	8/9/00
Phenanthrene	13	0.58		mg/Kg-dry	1	8/9/00
Anthracene	2.4	0.58		mg/Kg-dry	1	8/9/00
Fluoranthene	7.0	0.58		mg/Kg-dry	1	8/9/00
Pyrene	4.7	0.58		mg/Kg-dry	1	8/9/00
Benzo(a)Anthracene	1.5	0.58		mg/Kg-dry	1	8/9/00
Chrysene	1.6	0.58		mg/Kg-dry	1	8/9/00
Benzo(b)Fluoranthene	0.84	0.58		mg/Kg-dry	1	8/9/00
Benzo(k)Fluoranthene	0.67	0.58		mg/Kg-dry	1	8/9/00
Benzo(a)Pyrene	ND	0.58		mg/Kg-dry	1	8/9/00
Indeno(1,2,3-cd)Pyrene	ND	0.58		mg/Kg-dry	1	8/9/00
Dibenz(a,h)Anthracene	ND	0.58		mg/Kg-dry	1	8/9/00
Benzo(g,h,i)Perylene	ND	0.58		mg/Kg-dry	1	8/9/00
Surr: Aliphatic Surrogate COD	74.2	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2BN	96.6	40-140		%REC	1	8/9/00
Surr: Aromatic Surrogate OTP	107.0	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2FB	93.6	40-140		%REC	1	8/9/00

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-3 9-11
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.21	0.090		mg/Kg-dry	1	8/4/00 9:31:27 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	12		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	12		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	12		µg/Kg-dry	1	8/9/00
Aldrin	ND	12		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	12		µg/Kg-dry	1	8/9/00
beta-BHC	ND	12		µg/Kg-dry	1	8/9/00
Chlordane	ND	58		µg/Kg-dry	1	8/9/00
delta-BHC	ND	12		µg/Kg-dry	1	8/9/00
Dieldrin	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	12		µg/Kg-dry	1	8/9/00
Endrin	ND	12		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	12		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	12		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	12		µg/Kg-dry	1	8/9/00
Heptachlor	ND	12		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	12		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	12		µg/Kg-dry	1	8/9/00
Toxaphene	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	58		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	58		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	14	0		wt%	1	8/8/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-3 9-11
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	5.1	1.2		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	3.8	1.2		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	9.0	1.2		mg/Kg-dry	1	8/9/00
Benzene	ND	0.12		mg/Kg-dry	1	8/9/00
Toluene	ND	0.12		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.12		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.12		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.12		mg/Kg-dry	1	8/9/00
MTBE	ND	0.12		mg/Kg-dry	1	8/9/00
Naphthalene	7.1	0.12		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	99.5	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	77.0	70-130		%REC	1	8/9/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-4 14-16
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: AK
Specific Conductance	72	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		**SW9045B**				Analyst: AK
pH	8.10	0		pH Units-dry	1	8/10/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		**SW6010B**				Analyst: A
Arsenic	ND	9.0		mg/Kg-dry	1	8/4/00
Barium	17	18		mg/Kg-dry	1	8/4/00
Cadmium	0.56	0.90		mg/Kg-dry	1	8/4/00
Chromium	13	0.90		mg/Kg-dry	1	8/4/00
Lead	20	4.5		mg/Kg-dry	1	8/4/00
Selenium	ND	22		mg/Kg-dry	1	8/4/00
Silver	ND	0.90		mg/Kg-dry	1	8/4/00
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	110		mg/Kg-dry	1	8/9/00
C19-C36 Aliphatics	ND	110		mg/Kg-dry	1	8/9/00
C11-C22 Aromatics	ND	110		mg/Kg-dry	1	8/9/00
Unadjusted C11-C22 Aromatics	ND	110		mg/Kg-dry	1	8/9/00
Naphthalene	ND	0.54		mg/Kg-dry	1	8/9/00
2-Methylnaphthalene	ND	0.54		mg/Kg-dry	1	8/9/00
Acenaphthylene	ND	0.54		mg/Kg-dry	1	8/9/00
Acenaphthene	ND	0.54		mg/Kg-dry	1	8/9/00
Fluorene	ND	0.54		mg/Kg-dry	1	8/9/00
Phenanthrene	0.66	0.54		mg/Kg-dry	1	8/9/00
Anthracene	ND	0.54		mg/Kg-dry	1	8/9/00
Fluoranthene	0.72	0.54		mg/Kg-dry	1	8/9/00
Pyrene	ND	0.54		mg/Kg-dry	1	8/9/00
Benzo(a)Anthracene	ND	0.54		mg/Kg-dry	1	8/9/00
Chrysene	ND	0.54		mg/Kg-dry	1	8/9/00
Benzo(b)Fluoranthene	ND	0.54		mg/Kg-dry	1	8/9/00
Benzo(k)Fluoranthene	ND	0.54		mg/Kg-dry	1	8/9/00
Benzo(a)Pyrene	ND	0.54		mg/Kg-dry	1	8/9/00
Indeno(1,2,3-cd)Pyrene	ND	0.54		mg/Kg-dry	1	8/9/00
Dibenz(a,h)Anthracene	ND	0.54		mg/Kg-dry	1	8/9/00
Benzo(g,h,i)Perylene	ND	0.54		mg/Kg-dry	1	8/9/00
Surr: Aliphatic Surrogate COD	81.3	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2BN	109.8	40-140		%REC	1	8/9/00
Surr: Aromatic Surrogate OTP	89.6	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2FB	96.0	40-140		%REC	1	8/9/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0008017
Project: MUDDY RIVER/BOSTON
Lab ID: 0008017-02A

Client Sample ID: SPL-SB1, S-4 14-16
Collection Date: 7/28/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.081		mg/Kg-dry	1	8/4/00 9:34:40 AM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	11		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	11		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	11		µg/Kg-dry	1	8/9/00
Aldrin	ND	11		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	11		µg/Kg-dry	1	8/9/00
beta-BHC	ND	11		µg/Kg-dry	1	8/9/00
Chlordane	ND	54		µg/Kg-dry	1	8/9/00
delta-BHC	ND	11		µg/Kg-dry	1	8/9/00
Dieldrin	ND	11		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	11		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	11		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	8/9/00
Endrin	ND	11		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	11		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	11		µg/Kg-dry	1	8/9/00
Heptachlor	ND	11		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	11		µg/Kg-dry	1	8/9/00
Toxaphene	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	54		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	54		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	8.2	0		wt%	1	8/8/00
SILT, BY H/METER		D422				Analyst: ADM
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

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B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-4 14-16
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.1		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	ND	1.1		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.1		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.1		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	ND	1.1		mg/Kg-dry	1	8/9/00
Benzene	ND	0.11		mg/Kg-dry	1	8/9/00
Toluene	ND	0.11		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.11		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.11		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.11		mg/Kg-dry	1	8/9/00
MTBE	ND	0.11		mg/Kg-dry	1	8/9/00
Naphthalene	1.4	0.11		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	90.5	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	72.0	70-130		%REC	1	8/9/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-5 19-21
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	180	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		SW9045B				Analyst: AK
pH	6.70	0		pH Units-dry	1	8/10/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	15	9.0		mg/Kg-dry	1	8/4/00
Barium	38	18		mg/Kg-dry	1	8/4/00
Cadmium	1.7	0.90		mg/Kg-dry	1	8/4/00
Chromium	38	0.90		mg/Kg-dry	1	8/4/00
Lead	15	4.5		mg/Kg-dry	1	8/4/00
Selenium	ND	22		mg/Kg-dry	1	8/4/00
Silver	ND	0.90		mg/Kg-dry	1	8/4/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	180		mg/Kg-dry	1	8/9/00
C19-C36 Aliphatics	ND	180		mg/Kg-dry	1	8/9/00
C11-C22 Aromatics	ND	180		mg/Kg-dry	1	8/9/00
Unadjusted C11-C22 Aromatics	ND	180		mg/Kg-dry	1	8/9/00
Naphthalene	ND	0.90		mg/Kg-dry	1	8/9/00
2-Methylnaphthalene	ND	0.90		mg/Kg-dry	1	8/9/00
Acenaphthylene	ND	0.90		mg/Kg-dry	1	8/9/00
Acenaphthene	ND	0.90		mg/Kg-dry	1	8/9/00
Fluorene	ND	0.90		mg/Kg-dry	1	8/9/00
Phenanthrene	ND	0.90		mg/Kg-dry	1	8/9/00
Anthracene	ND	0.90		mg/Kg-dry	1	8/9/00
Fluoranthene	ND	0.90		mg/Kg-dry	1	8/9/00
Pyrene	ND	0.90		mg/Kg-dry	1	8/9/00
Benzo(a)Anthracene	ND	0.90		mg/Kg-dry	1	8/9/00
Chrysene	ND	0.90		mg/Kg-dry	1	8/9/00
Benzo(b)Fluoranthene	ND	0.90		mg/Kg-dry	1	8/9/00
Benzo(k)Fluoranthene	ND	0.90		mg/Kg-dry	1	8/9/00
Benzo(a)Pyrene	ND	0.90		mg/Kg-dry	1	8/9/00
Indeno(1,2,3-cd)Pyrene	ND	0.90		mg/Kg-dry	1	8/9/00
Dibenz(a,h)Anthracene	ND	0.90		mg/Kg-dry	1	8/9/00
Benzo(g,h,i)Perylene	ND	0.90		mg/Kg-dry	1	8/9/00
Surr: Aliphatic Surrogate COD	40.0	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2BN	63.9	40-140		%REC	1	8/9/00
Surr: Aromatic Surrogate OTP	53.1	40-140		%REC	1	8/9/00
Surr: Fractionation Surrogate 2FB	62.8	40-140		%REC	1	8/9/00

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E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-5 19-21
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.14		mg/Kg-dry	1	8/4/00 9:50:14 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	18		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	18		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	18		µg/Kg-dry	1	8/9/00
Aldrin	ND	18		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	18		µg/Kg-dry	1	8/9/00
beta-BHC	ND	18		µg/Kg-dry	1	8/9/00
Chlordane	ND	90		µg/Kg-dry	1	8/9/00
delta-BHC	ND	18		µg/Kg-dry	1	8/9/00
Dieldrin	ND	18		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	18		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	18		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	18		µg/Kg-dry	1	8/9/00
Endrin	ND	18		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	18		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	18		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	18		µg/Kg-dry	1	8/9/00
Heptachlor	ND	18		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	18		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	18		µg/Kg-dry	1	8/9/00
Toxaphene	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	90		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	90		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	44	0		wt%	1	8/8/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1, S-5 19-21
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	SOIL
Lab ID:	0008017-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.8		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	ND	1.8		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.8		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.8		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	ND	1.8		mg/Kg-dry	1	8/9/00
Benzene	ND	0.18		mg/Kg-dry	1	8/9/00
Toluene	ND	0.18		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.18		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.18		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.18		mg/Kg-dry	1	8/9/00
MTBE	ND	0.18		mg/Kg-dry	1	8/9/00
Naphthalene	0.48	0.18		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	87.5	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	72.0	70-130		%REC	1	8/9/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB1
Lab Order:	0008017	**Collection Date:**	7/28/00
Project:	MUDDY RIVER/BOSTON	**Matrix:**	TRIP BLANK
Lab ID:	0008017-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	50		µg/L	1	8/4/00
C9-C12 Aliphatics	ND	50		µg/L	1	8/4/00
C9-10 Aromatics	ND	50		µg/L	1	8/4/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	8/4/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	8/4/00
Benzene	ND	2.0		µg/L	1	8/4/00
Toluene	ND	2.0		µg/L	1	8/4/00
Ethylbenzene	ND	2.0		µg/L	1	8/4/00
m+p-Xylene	ND	2.0		µg/L	1	8/4/00
o-Xylene	ND	2.0		µg/L	1	8/4/00
MTBE	ND	2.0		µg/L	1	8/4/00
Naphthalene	ND	2.0		µg/L	1	8/4/00
Surr: FID Surrogate 2,5-DBT	93.4	70-130		%REC	1	8/4/00
Surr: PID Surrogate 2,5-DBT	92.3	70-130		%REC	1	8/4/00

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R - RPD outside accepted recovery limits

E - Value above quantitation range

Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

DUE DATE: 15 DAYS

COMPANY: Camp Dresser & McKee
ADDRESS: 50 Hampshire St
Cambridge MA 01239
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: Carole Kisluk / Mike Bachand
PROJECT ID/LOCATION: Muddy River / Boston

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	ANALYSES: VPH - w/ TARGET PAH's	EPH - w/ TARGET PAH's	RCRA 8 METALS	PESTICIDES/PCB's	CONDUCTANCE	TCLP METALS + TOTAL CYANIDE & SULFIDES	REACTIVITY	CORROSIVITY	PERCENT WATER	SIEVE & HYDROMETER	SPECIAL INSTRUCTIONS/ COMMENTS
1	~~SPL-SB1~~	SOIL	1L	G	1	7/28/00		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	~~SPL-SB1~~	SOIL	1L	G	1	7/28/00		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	~~SPL-SB1~~	SOIL	1L	G	1	7/28/00		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
4	~~SPL-SB1~~	SOIL		G	1	7/28/00		MeOH	✓										
5	~~SPL-SB1~~	SOIL		G	1	7/28/00		MeOH	✓										
6	~~SPL-SB1~~	SOIL		G	1	7/28/00		MeOH	✓										
7	~~SPL-SB1~~			G	1	7/28/00		HCL	✓										TRIP BLANK

SAMPLED BY: M. BACHAND
DATE: 7.28.00
TIME: 1.00 pm

RELINQUISHED BY: OMAIR MASUD
DATE: 8.1.00
TIME: 12.20.

RELINQUISHED BY:
DATE: 8.1.00
TIME: 15.30.

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY:
DATE: 8.1.00
TIME: 12.20.

RECEIVED FOR LAB BY:
DATE: 8/1/00
TIME: 15:30

COOLER TEMPERATURE

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 0008017

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT — WET CHEMISTRY

WORK ORDER: 0008017
MATRIX: SOIL

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120
Conductivity	1.5	0-25	99	NA	80-120
pH	0	0-25	100	NA	80-120

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0008017
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	98	77
LCS	102	79
MS0008037.1	81	74
DUP0008037.1	77	73
0008017.1	99	77
0008017.2	90	72
0008017.3	88	72

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0008017
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	78	70-130
Benzene	73	70-130
Toluene	75	70-130
Ethylbenzene	81	70-130
Xylene (total)	84	70-130
Naphthalene	74	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0008037.1
SPIKE SAMPLE: 0008037.1

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.1	2	1.40	65.0	0.1	0.0	< 25	70-130
Benzene	0.0	2	1.14	57.0	0.0	0.0	< 25	70-130
Toluene	0.0	2	1.14	57.0	0.0	0.0	< 25	70-130
Ethylbenzene	0.0	2	1.18	59.0	0.0	0.0	< 25	70-130
Xylene (total)	0.0	6	3.96	66.0	0.0	0.0	< 25	70-130
Naphthalene	0.1	2	1.30	60.0	0.1	0.0	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0008017
MATRIX: WATER

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	83	70-130
Benzene	84	70-130
Toluene	89	70-130
Ethylbenzene	91	70-130
Xylene (total)	94	70-130
Naphthalene	85	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0008029.1
SPIKE SAMPLE: 0008029.1

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.0	40	36.00	90.0	0.0	0.0	< 25	70-130
Benzene	0.0	40	34.50	86.3	0.0	0.0	< 25	70-130
Toluene	0.0	40	32.00	80.0	0.0	0.0	< 25	70-130
Ethylbenzene	0.0	40	33.80	84.5	0.0	0.0	< 25	70-130
Xylene (total)	0.0	120	118.00	98.3	0.0	0.0	< 25	70-130
Naphthalene	0.0	40	36.00	90.0	0.0	0.0	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0008017
MATRIX: WATER

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	89	98
LCS	98	87
MS0008029.1	83	84
DUP0008029.1	86	93
0008017.4	93	92

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0008017
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/31/00
DATE ANALYZED : 8/3/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	33.3	66.6	26.2	52.4
TETRADECANE C14	40.8	81.6	34.4	68.8
NONADECANE C19	44.3	88.6	38.8	77.6
EICOSANE C20	48.5	97.0	43.5	87.0
OCTACOSANE C28	24.6	49.2	21.7	43.4
NAPHTHALENE	37.5	75.0	3.37	6.7
ACENAPHTHENE	37.9	75.8	20.6	41.2
ANTHRACENE	38.3	76.6	25.9	51.8
PYRENE	40.8	81.6	31.2	62.4
CHRYSENE	40.2	80.4	30.9	61.8

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0008017
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	60	83
LCS	58	89
MS0007492.1	55	71
0008017.1	86	124
0008017.2	89	97
0008017.3	72	96

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0008017
MATRIX : SOIL

SPIKE SAMPLE: 0007521.1
HG SPIKE SAMPLE: 0007521.1

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	102.0	91.5	0
As	ND	102.2	89.5	0
Ba	ND	97.6	88.3	36.8
Cd	ND	107.4	94.5	26.1
Cr	ND	105.2	100.6	12.3
Pb	ND	106.6	95.1	9.1
Se	ND	98.2	108.0	0
Hg	ND	117.1	118.2	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 0008017
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	20.0	43.0
LCS	16.5	46.5
MS0007521.1	27.5	55.5
MSD0007521.1	22.0	55.5
0008017.1	26.0	51.0
0008017.2	24.0	43.0
0008017.3	90.0	95.0

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 0008017
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0008015OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.010	5.0	25-111
Heptachlor	0.2	0.009	4.5	28-122
Aldrin	0.2	0.009	4.5	16-124
Dieldrin	0.2	0.015	7.5	28-128
Endrin	0.2	0.015	7.5	17-158
4,4'-DDT	0.2	0.024	12.0	27-132
*** AROCHLOR 1260	5.0	2.68	53.6	38-144

MATRIX SPIKE SAMPLE : MS0007521.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.006	3.0
Heptachlor	0.2	ND	0.007	3.5
Aldrin	0.2	ND	0.006	3.0
Dieldrin	0.2	ND	0.042	21.0
Endrin	0.2	ND	0.042	21.0
4,4'-DDT	0.2	ND	0.053	26.5
*** AROCHLOR 1260	5.0	NA	2.097	41.9

MATRIX SPIKE DUPLICATE : MSD0007521.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.005	2.5	0.0	< 15	25-111
Heptachlor	0.2	0.006	3.0	15.4	< 15	28-122
Aldrin	0.2	0.005	2.5	18.2	< 15	16-124
Dieldrin	0.2	0.039	19.5	7.4	< 15	28-128
Endrin	0.2	0.039	19.5	7.4	< 15	17-158
4,4'-DDT	0.2	0.053	26.5	0.0	<15	27-132
*** AROCHLOR 1260	5.0	2.02	40.4	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 07, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER/BOSTON, MA Order No.: 0007382

Dear MIKE BACHAND,

Toxikon received 8 samples on 7/21/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA
NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER/BOSTON, MA
Lab Order: 0007382
Date Received: 7/21/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0007382-01A	SPL-SB7 S-2 4-6	7/18/00 7:30:00 AM
0007382-02A	SPL-SB7, S-3 9-11	7/18/00 8:00:00 AM
0007382-03A	SPL-SB7, S-4 14-16	7/18/00 8:25:00 AM
0007382-04A	SPL-SB7 TRIP	7/21/00
0007382-05A	EC-SB1, S-2 4-6	7/20/00
0007382-06A	EC-SB1, S-3 9-11	7/20/00
0007382-07A	EC-SB1, S-4 14-16	7/20/00
0007382-08A	EC-SB1 TRIP	7/20/00

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER/BOSTON, MA
Lab Order: 0007382

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0007382

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Position: LAB MANAGER

Printed Name: Paul Lessard Date: 8/7/00

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-01A

Client Sample ID: SPL-SB7 S-2 4-6
Collection Date: 7/18/00 7:30:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	61	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.30	0		pH Units	1	7/24/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	7.9		mg/Kg-dry	1	7/27/00
Barium	250	16		mg/Kg-dry	1	7/27/00
Cadmium	1.4	0.79		mg/Kg-dry	1	7/27/00
Chromium	12	0.79		mg/Kg-dry	1	7/27/00
Lead	34	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	61.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	100.0	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	75.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	91.0	40-140		%REC	1	7/31/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon

Date: *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB7 S-2 4-6
Lab Order:	0007382	**Collection Date:**	7/18/00 7:30:00 AM
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	12		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	12		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	12		µg/Kg-dry	1	8/6/00
Aldrin	ND	12		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	12		µg/Kg-dry	1	8/6/00
beta-BHC	ND	12		µg/Kg-dry	1	8/6/00
Chlordane	ND	58		µg/Kg-dry	1	8/6/00
delta-BHC	ND	12		µg/Kg-dry	1	8/6/00
Dieldrin	ND	12		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	12		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	12		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	12		µg/Kg-dry	1	8/6/00
Endrin	ND	12		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	12		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	12		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	12		µg/Kg-dry	1	8/6/00
Heptachlor	ND	12		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	12		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	12		µg/Kg-dry	1	8/6/00
Toxaphene	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	58		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	58		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	14	0		wt%	1	8/1/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

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* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-01A

Client Sample ID: SPL-SB7 S-2 4-6
Collection Date: 7/18/00 7:30:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/26/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/26/00
C9-10 Aromatics	1.4	1.0		mg/Kg-dry	1	7/26/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/26/00
Unadjusted C9-C12 Aliphatics	2.0	1.0		mg/Kg-dry	1	7/26/00
Benzene	ND	0.10		mg/Kg-dry	1	7/26/00
Toluene	ND	0.10		mg/Kg-dry	1	7/26/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/26/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/26/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/26/00
MTBE	0.30	0.10		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/26/00
Surr: FID Surrogate 2,5-DBT	80.0	70-130		%REC	1	7/26/00
Surr: PID Surrogate 2,5-DBT	90.0	70-130		%REC	1	7/26/00

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-02A

Client Sample ID: SPL-SB7, S-3 9-11
Collection Date: 7/18/00 8:00:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	62	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	9.20	0		pH Units	1	7/24/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	13	7.9		mg/Kg-dry	1	7/27/00
Barium	260	16		mg/Kg-dry	1	7/27/00
Cadmium	2.0	0.79		mg/Kg-dry	1	7/27/00
Chromium	30	0.79		mg/Kg-dry	1	7/27/00
Lead	64	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	50.5	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	100.5	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	84.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	89.0	40-140		%REC	1	7/31/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-02A

Client Sample ID: SPL-SB7, S-3 9-11
Collection Date: 7/18/00 8:00:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	16		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	16		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	16		µg/Kg-dry	1	8/6/00
Aldrin	ND	16		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	16		µg/Kg-dry	1	8/6/00
beta-BHC	ND	16		µg/Kg-dry	1	8/6/00
Chlordane	ND	80		µg/Kg-dry	1	8/6/00
delta-BHC	ND	16		µg/Kg-dry	1	8/6/00
Dieldrin	ND	16		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	16		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	16		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	16		µg/Kg-dry	1	8/6/00
Endrin	ND	16		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	16		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	16		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	16		µg/Kg-dry	1	8/6/00
Heptachlor	ND	16		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	16		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	16		µg/Kg-dry	1	8/6/00
Toxaphene	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	80		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	80		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	38	0		wt%	1	8/1/00
SILT, BY H/METER		X				Analyst: ADM
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB7, S-3 9-11
Lab Order:	0007382	**Collection Date:**	7/18/00 8:00:00 AM
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	2.4	1.0		mg/Kg-dry	1	7/26/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/26/00
C9-10 Aromatics	2.4	1.0		mg/Kg-dry	1	7/26/00
Unadjusted C5-C8 Aliphatics	2.4	1.0		mg/Kg-dry	1	7/26/00
Unadjusted C9-C12 Aliphatics	1.8	1.0		mg/Kg-dry	1	7/26/00
Benzene	ND	0.10		mg/Kg-dry	1	7/26/00
Toluene	0.12	0.10		mg/Kg-dry	1	7/26/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/26/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/26/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/26/00
MTBE	0.59	0.10		mg/Kg-dry	1	7/26/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/26/00
Surr: FID Surrogate 2,5-DBT	80.0	70-130		%REC	1	7/26/00
Surr: PID Surrogate 2,5-DBT	90.0	70-130		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

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R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB7, S-4 14-16
Lab Order:	0007382	**Collection Date:**	7/18/00 8:25:00 AM
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	100	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.90	0		pH Units	1	7/24/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	7.9		mg/Kg-dry	1	7/27/00
Barium	32	16		mg/Kg-dry	1	7/27/00
Cadmium	0.95	0.79		mg/Kg-dry	1	7/27/00
Chromium	15	0.79		mg/Kg-dry	1	7/27/00
Lead	24	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	57.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	105.0	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	82.5	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	97.0	40-140		%REC	1	7/31/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB7, S-4 14-16
Lab Order:	0007382	**Collection Date:**	7/18/00 8:25:00 AM
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.12	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	13		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	13		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	13		µg/Kg-dry	1	8/6/00
Aldrin	ND	13		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	13		µg/Kg-dry	1	8/6/00
beta-BHC	ND	13		µg/Kg-dry	1	8/6/00
Chlordane	ND	65		µg/Kg-dry	1	8/6/00
delta-BHC	ND	13		µg/Kg-dry	1	8/6/00
Dieldrin	ND	13		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	13		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	13		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	13		µg/Kg-dry	1	8/6/00
Endrin	ND	13		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	13		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	13		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	13		µg/Kg-dry	1	8/6/00
Heptachlor	ND	13		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	13		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	13		µg/Kg-dry	1	8/6/00
Toxaphene	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	65		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	65		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	23	0		wt%	1	8/1/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-03A

Client Sample ID: SPL-SB7, S-4 14-16
Collection Date: 7/18/00 8:25:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/28/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/28/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/28/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/28/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/28/00
Benzene	ND	0.10		mg/Kg-dry	1	7/28/00
Toluene	ND	0.10		mg/Kg-dry	1	7/28/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/28/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/28/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/28/00
MTBE	0.23	0.10		mg/Kg-dry	1	7/28/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/28/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/28/00
Surr: PID Surrogate 2,5-DBT	95.0	70-130		%REC	1	7/28/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB7 TRIP
Lab Order:	0007382	**Collection Date:**	7/21/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007382-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	50		µg/L	1	7/26/00
C9-C12 Aliphatics	ND	50		µg/L	1	7/26/00
C9-10 Aromatics	ND	50		µg/L	1	7/26/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	7/26/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	7/26/00
Benzene	ND	2.0		µg/L	1	7/26/00
Toluene	ND	2.0		µg/L	1	7/26/00
Ethylbenzene	ND	2.0		µg/L	1	7/26/00
m+p-Xylene	ND	2.0		µg/L	1	7/26/00
o-Xylene	ND	2.0		µg/L	1	7/26/00
MTBE	ND	2.0		µg/L	1	7/26/00
Naphthalene	ND	2.0		µg/L	1	7/26/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/26/00
Surr: PID Surrogate 2,5-DBT	72.5	70-130		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-2 4-6
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-05A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	26	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.00	0		pH Units	1	7/25/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	7.9		mg/Kg-dry	1	7/27/00
Barium	30	16		mg/Kg-dry	1	7/27/00
Cadmium	1.0	0.79		mg/Kg-dry	1	7/27/00
Chromium	13	0.79		mg/Kg-dry	1	7/27/00
Lead	26	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	52.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	100.0	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	80.5	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	92.5	40-140		%REC	1	7/31/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-2 4-6
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-05A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	11		µg/Kg-dry	1	8/6/00
Aldrin	ND	11		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	11		µg/Kg-dry	1	8/6/00
beta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Chlordane	ND	54		µg/Kg-dry	1	8/6/00
delta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Dieldrin	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	8/6/00
Endrin	ND	11		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	11		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	11		µg/Kg-dry	1	8/6/00
Toxaphene	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	54		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	54		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	7.5	0		wt%	1	8/1/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-2 4-6
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-05A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Benzene	ND	0.10		mg/Kg-dry	1	7/27/00
Toluene	ND	0.10		mg/Kg-dry	1	7/27/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/27/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
MTBE	ND	0.10		mg/Kg-dry	1	7/27/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/27/00
Surr: FID Surrogate 2,5-DBT	70.0	70-130		%REC	1	7/27/00
Surr: PID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/27/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-3 9-11
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-06A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	4.3	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	7.00	0		pH Units	1	7/25/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	7.9		mg/Kg-dry	1	7/27/00
Barium	18	16		mg/Kg-dry	1	7/27/00
Cadmium	0.74	0.79		mg/Kg-dry	1	7/27/00
Chromium	8.3	0.79		mg/Kg-dry	1	7/27/00
Lead	14	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	54.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	54.0	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	77.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	93.0	40-140		%REC	1	7/31/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-06A

Client Sample ID: EC-SB1, S-3 9-11
Collection Date: 7/20/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	11		µg/Kg-dry	1	8/6/00
Aldrin	ND	11		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	11		µg/Kg-dry	1	8/6/00
beta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Chlordane	ND	55		µg/Kg-dry	1	8/6/00
delta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Dieldrin	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	8/6/00
Endrin	ND	11		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	11		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	11		µg/Kg-dry	1	8/6/00
Toxaphene	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	55		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	55		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	9.5	0		wt%	1	8/1/00
SILT, BY H/METER		X				Analyst: ADM
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:
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R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-3 9-11
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-06A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Benzene	ND	0.10		mg/Kg-dry	1	7/27/00
Toluene	ND	0.10		mg/Kg-dry	1	7/27/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/27/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
MTBE	ND	0.10		mg/Kg-dry	1	7/27/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/27/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/27/00
Surr: PID Surrogate 2,5-DBT	95.0	70-130		%REC	1	7/27/00

Qualifiers:

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Toxikon **Date:** *07-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007382
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007382-07A

Client Sample ID: EC-SB1, S-4 14-16
Collection Date: 7/20/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	7.3	0.10		µmhos/cm	1	7/27/00
CORROSIVITY		SW9045B				Analyst: CR
pH	6.90	0		pH Units	1	7/25/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	7.9		mg/Kg-dry	1	7/27/00
Barium	22	16		mg/Kg-dry	1	7/27/00
Cadmium	0.81	0.79		mg/Kg-dry	1	7/27/00
Chromium	10	0.79		mg/Kg-dry	1	7/27/00
Lead	13	4.0		mg/Kg-dry	1	7/27/00
Selenium	ND	20		mg/Kg-dry	1	7/27/00
Silver	ND	0.79		mg/Kg-dry	1	7/27/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/31/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/31/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/31/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/31/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/31/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/31/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/31/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/31/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/31/00
Surr: Aliphatic Surrogate COD	57.0	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2BN	101.5	40-140		%REC	1	7/31/00
Surr: Aromatic Surrogate OTP	86.5	40-140		%REC	1	7/31/00
Surr: Fractionation Surrogate 2FB	95.5	40-140		%REC	1	7/31/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-4 14-16
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-07A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.11	0.080		mg/Kg-dry	1	7/28/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDE	ND	11		µg/Kg-dry	1	8/6/00
4,4'-DDT	ND	11		µg/Kg-dry	1	8/6/00
Aldrin	ND	11		µg/Kg-dry	1	8/6/00
alpha-BHC	ND	11		µg/Kg-dry	1	8/6/00
beta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Chlordane	ND	56		µg/Kg-dry	1	8/6/00
delta-BHC	ND	11		µg/Kg-dry	1	8/6/00
Dieldrin	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan I	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan II	ND	11		µg/Kg-dry	1	8/6/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	8/6/00
Endrin	ND	11		µg/Kg-dry	1	8/6/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	8/6/00
Endrin Ketone	ND	11		µg/Kg-dry	1	8/6/00
gamma-BHC	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor	ND	11		µg/Kg-dry	1	8/6/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	8/6/00
Methoxychlor	ND	11		µg/Kg-dry	1	8/6/00
Toxaphene	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1016	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1221	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1248	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1232	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1242	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1254	ND	56		µg/Kg-dry	1	8/6/00
Aroclor 1260	ND	56		µg/Kg-dry	1	8/6/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	11	0		wt%	1	8/1/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0			1	8/2/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1, S-4 14-16
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007382-07A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/27/00
Benzene	ND	0.10		mg/Kg-dry	1	7/27/00
Toluene	ND	0.10		mg/Kg-dry	1	7/27/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/27/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/27/00
MTBE	ND	0.10		mg/Kg-dry	1	7/27/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/27/00
Surr: FID Surrogate 2,5-DBT	75.0	70-130		%REC	1	7/27/00
Surr: PID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/27/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *07-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB1 TRIP
Lab Order:	0007382	**Collection Date:**	7/20/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007382-08A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	50		µg/L	1	7/26/00
C9-C12 Aliphatics	ND	50		µg/L	1	7/26/00
C9-10 Aromatics	ND	50		µg/L	1	7/26/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	7/26/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	7/26/00
Benzene	ND	2.0		µg/L	1	7/26/00
Toluene	ND	2.0		µg/L	1	7/26/00
Ethylbenzene	ND	2.0		µg/L	1	7/26/00
m+p-Xylene	ND	2.0		µg/L	1	7/26/00
o-Xylene	ND	2.0		µg/L	1	7/26/00
MTBE	ND	2.0		µg/L	1	7/26/00
Naphthalene	ND	2.0		µg/L	1	7/26/00
Surr: FID Surrogate 2,5-DBT	90.0	70-130		%REC	1	7/26/00
Surr: PID Surrogate 2,5-DBT	75.0	70-130		%REC	1	7/26/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

15 Wiggins A[illegible]edford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

1 OF 2

WORK ORDER #: [illegible]

DUE DATE: 8.1.09 (RUSH 8.1.09 + RUSH)

COMPANY: CAMP DRESSER & MCKEE
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE MA 01239
PHONE #: (617) 452-6000 FAX #: (617) 452-6000
P.O. #:
PROJECT MANAGER: CAROLE KASITZKE / MIKE BACHAND
PROJECT ID/LOCATION: MUDDY RIVER / BOSTON, MA

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH w/ TARGET PAHS	EPH w/ TARGET PAHS	RCRA 8 METALS	PESTICIDES/PCB'S	CONDUCTANCE	TCLP METALS (TOXICITY CHARACTERISTIC METALS)	REACTIVITY	CORROSIVITY	PERCENT WATER	SIEVE HYDROMETER	SPECIAL INSTRUCTIONS COMMENT
1	~~SPL-587~~ S-2 4-6	SOIL	1L	G	1	7/18	7:30 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	~~SPL-587~~ S-3 9-11	SOIL	1L	G	1	7/18	8:00 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	~~SPL-587~~ S-4 14-16	SOIL	1L	G	1	7/18	8:25 AM	NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
1	~~SPL-587~~ S-2 4-6	SOIL		G	1	7/18	7:30 AM	MEOH	✓										
2	~~SPL-587~~ S-3 9-11	SOIL		G	1	7/18	8:00 AM	MEOH	✓										
3	~~SPL-587~~ S-4 14-16	SOIL		G	1		8:25 AM	MEOH	✓										
4	~~SPL-587~~ TRIP							HCL	✓										TRIP BLANK

SAMPLED BY: M. BACHAND
DATE: 7.18.00
TIME: 7.00

RELINQUISHED BY: UMAIR MASUD
DATE: 7.21.00
TIME: 11.00

RELINQUISHED BY:
DATE: 7.21.00
TIME: 16.50

METHOD OF SHIPMENT:

QUOTATION #:

RECEIVED BY:
DATE: 7.21.00
TIME: 11.00

RECEIVED FOR LAB BY: Heidi Cooper
DATE: 7.21.00
TIME: 9.50 AM

COOLER TEMPERATURE:

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone. (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

2 OF 2

WORK ORDER #: 00.07.382

DUE DATE: 8.1.00

COMPANY: CAMP DRESSER & McKEE
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE MA 01239
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: CAROLE ROSLOCKE / MIKE BACHAND
PROJECT ID/LOCATION: MOODY ROAD / BOSTON

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH - w/ TARGET PAH's	EPH - w/ TARGET PAH's	RCRA 8 METAL	POTENTIAL PCB's/PCB's	CORROSIVITY	TCLP METALS + VOLATILES + SEMI-VOLATILES	REACTIVITY SULFIDE & CYANIDE	CORROSIVITY	PERCENT WATER	SOLVENT & HYDROMETER	SPECIAL INSTRUCTIONS COMMENTS
5	EC-SB1 S-2 4-6	SOIL	1L	G	1	7/20		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
6	EC-SB1 S-3 9-11	SOIL	1L	G	1	7/20		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
7	EC-SB1 S-4 14-16	SOIL	1L	G	1	7/20		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
5	EC-SB1 S-2 4-6	SOIL		G	1	7/20		METH	✓										
6	EC-SB1 S-3 9-11	SOIL		G	1	7/20		METH	✓										
7	EC-SB1 S-4 14-16			G	1	7/20		METH	✓										
8	EC-SB1 TRIP							HCL	✓										TRIP BLANK

SAMPLED BY: M. BACHAND

DATE: 7 - 20-00
TIME: 1 -

RELINQUISHED BY:
DATE: 7 -
TIME: 11 -

RECEIVED BY:
DATE: 7 -
TIME: 14 -

QUOTATION

RUSH ..... BUSINESS DAY TURNAROUND
ROUTINE

Sample disposal information

CASE NARRATIVE

Work Order: 0007382

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 0007382
MATRIX: SOIL

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Conductivity	0	0-25	102	NA	80-120
Corrosivity	0	0-25	100	NA	80-120
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007382
MATRIX: WATER

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	86	72
LCS	96	82
MS0007426.4	85	72
DUP0007426.4	86	72
0007382.4	85	72
0007382.8	89	75

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007382
MATRIX: WATER

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	77	70-130
Benzene	73	70-130
Toluene	73	70-130
Ethylbenzene	72	70-130
Xylene (total)	72	70-130
Naphthalene	87	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0007426.4
SPIKE SAMPLE: 0007426.4

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.0	40	29.20	73.0	0.0	0.0	< 25	70-130
Benzene	0.0	40	30.00	75.0	0.0	0.0	< 25	70-130
Toluene	0.0	40	30.00	75.0	0.0	0.0	< 25	70-130
Ethylbenzene	0.0	40	29.60	74.0	0.0	0.0	< 25	70-130
Xylene (total)	0.0	120	89.00	74.2	0.5	NA	< 25	70-130
Naphthalene	0.0	40	32.00	80.0	0.8	NA	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007382
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	94	105
LCS	95	109
MS0007288.1	93	108
DUP0007288.1	90	101
0007382.1	78	89
0007382.2	81	90
0007382.3	86	97
0007382.5	72	83
0007382.6	82	94
0007382.7	76	87

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007382
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	86	70-130
Benzene	84	70-130
Toluene	93	70-130
Ethylbenzene	96	70-130
Xylene (total)	101	70-130
Naphthalene	115	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0007288.1
SPIKE SAMPLE: 0007288.1

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.0	2	1.48	74.0	0.0	0.0	< 25	70-130
Benzene	0.0	2	1.62	81.0	0.0	0.0	< 25	70-130
Toluene	0.1	2	1.92	91.0	0.1	0.0	< 25	70-130
Ethylbenzene	0.0	2	1.92	96.0	0.0	0.0	< 25	70-130
Xylene (total)	0.1	6	5.86	96.0	0.1	0.0	< 25	70-130
Naphthalene	0.0	2	2.16	108.0	0.0	0.0	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007382
MATRIX : SOIL

SPIKE SAMPLE: 0007409.3
HG SPIKE SAMPLE: 0007409.3

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	106.2	91.2	0
As	ND	99.8	95.4	3.1
Ba	ND	97.6	92.9	21.7
Cd	ND	103.2	91.5	0
Cr	ND	102.6	98.3	13.5
Pb	ND	99.2	NA*	34.5
Se	ND	98.0	93.0	0
Hg	ND	102.6	111.6	0

NA* = Not applicable when native concentration exceeds the matrix spike amount added.

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0007382
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	70	98
LCS	58	98
MS0007385.3	68	108
0007382.1	61	75
0007382.2	50	84
0007382.3	57	82
0007382.5	52	80
0007382.6	54	77
0007382.7	57	86

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0007382
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/24/00
DATE ANALYZED : 7/28/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	24.5	49.0	13.0	26.0
TETRADECANE C14	38.5	77.0	38.7	77.4
NONADECANE C19	42.5	85.0	51.1	102.2
EICOSANE C20	43.4	86.8	52.6	105.2
OCTACOSANE C28	39.6	79.2	47.2	94.4
NAPHTHALENE	41.1	82.2	23.6	47.2
ACENAPHTHENE	41.9	83.8	40.8	81.6
ANTHRACENE	39.1	78.2	48.7	97.4
PYRENE	47.5	95.0	54.4	108.8
CHRYSENE	46.3	92.6	53.6	107.2

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 0007382
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	26.5	47.5
LCS	23.5	55.0
MS0007382.6	28.0	50.0
MSD0007382.6	24.5	52.0
0007382.1	39.0	60.0
0007382.2	41.5	60.5
0007382.3	31.0	49.0
0007382.5	20.0	50.5
0007382.6	26.5	61.5
0007382.7	32.0	59.0

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 0007382
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0008001OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.063	31.5	25-111
Heptachlor	0.2	0.057	28.5	28-122
Aldrin	0.2	0.069	34.5	16-124
Dieldrin	0.2	0.094	47.0	28-128
Endrin	0.2	0.109	54.5	17-158
4,4'-DDT	0.2	0.121	60.5	27-132
*** AROCHLOR 1260	5.0	2.93	58.5	38-144

MATRIX SPIKE SAMPLE : MS0007382.6
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.027	13.5
Heptachlor	0.2	ND	0.031	15.5
Aldrin	0.2	ND	0.025	12.5
Dieldrin	0.2	ND	0.152	76.0
Endrin	0.2	ND	0.165	82.5
4,4'-DDT	0.2	ND	0.130	65.0
*** AROCHLOR 1260	1.0	ND	1.148	114.8

MATRIX SPIKE DUPLICATE : MSD0007382.6
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.025	12.5	0.0	< 15	25-111
Heptachlor	0.2	0.027	13.5	13.8	< 15	28-122
Aldrin	0.2	0.022	11.0	12.8	< 15	16-124
Dieldrin	0.2	0.151	75.5	0.7	< 15	28-128
Endrin	0.2	0.167	83.5	1.2	< 15	17-158
4,4'-DDT	0.2	0.136	68.0	4.5	<15	27-132
*** AROCHLOR 1260	1.0	1.17	117.2	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 02, 2000

CAROLE KASLICK/MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER / BOSTON, MA Order No.: 0007131

Dear CAROLE KASLICK/MIKE BACHA

Toxikon received 3 samples on 7/12/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA
NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007131
Date Received: 7/12/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0007131-01A	SPL-SB3, S-4 - 14-16	7/11/00 12:35:00 PM
0007131-02A	SPL - SB3, S-2 - 4-6	7/11/00 11:00:00 AM
0007131-03A	SPL - SB3, S-3 - 11-13	7/11/00 11:35:00 AM

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007131

CASE NARRATIVE

PAHs have been confirmed by GCMS analysis.

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER / BOSTON, MA
Lab Order: 0007131

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0007131

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3? Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: [signature] Position: LAB MANAGER

Printed Name: [signature] Date: 8/2/00

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB3, S-4 - 14-16
Lab Order:	0007131	**Collection Date:**	7/11/00 12:35:00 PM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007131-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	280	0.10		µmhos/cm	1	7/14/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.90	0		pH Units	1	7/13/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TCLP LEACHED		SW1311/6010B				Analyst: A
Lead	ND	0.50		mg/L	1	7/17/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	20	6.5		mg/Kg-dry	1	7/14/00
Barium	52	13		mg/Kg-dry	1	7/14/00
Cadmium	1.7	0.65		mg/Kg-dry	1	7/14/00
Chromium	25	0.65		mg/Kg-dry	1	7/14/00
Lead	120	3.2		mg/Kg-dry	1	7/14/00
Selenium	ND	16		mg/Kg-dry	1	7/14/00
Silver	ND	0.65		mg/Kg-dry	1	7/14/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB3, S-4 - 14-16
Lab Order:	0007131	**Collection Date:**	7/11/00 12:35:00 PM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007131-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/17/00
C19-C36 Aliphatics	240	100		mg/Kg-dry	1	7/17/00
C11-C22 Aromatics	250	100		mg/Kg-dry	1	7/17/00
Unadjusted C11-C22 Aromatics	280	100		mg/Kg-dry	1	7/17/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/17/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/17/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/17/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/17/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/17/00
Phenanthrene	2.7	0.50		mg/Kg-dry	1	7/17/00
Anthracene	0.76	0.50		mg/Kg-dry	1	7/17/00
Fluoranthene	6.8	0.50		mg/Kg-dry	1	7/17/00
Pyrene	5.8	0.50		mg/Kg-dry	1	7/17/00
Benzo(a)Anthracene	3.6	0.50		mg/Kg-dry	1	7/17/00
Chrysene	4.9	0.50		mg/Kg-dry	1	7/17/00
Benzo(b)Fluoranthene	3.1	0.50		mg/Kg-dry	1	7/17/00
Benzo(k)Fluoranthene	2.6	0.50		mg/Kg-dry	1	7/17/00
Benzo(a)Pyrene	3.0	0.50		mg/Kg-dry	1	7/17/00
Indeno(1,2,3-cd)Pyrene	1.9	0.50		mg/Kg-dry	1	7/17/00
Dibenz(a,h)Anthracene	0.50	0.50		mg/Kg-dry	1	7/17/00
Benzo(g,h,i)Perylene	2.6	0.50		mg/Kg-dry	1	7/17/00
Surr: Aliphatic Surrogate COD	65.5	40-140		%REC	1	7/17/00
Surr: Fractionation Surrogate 2BN	101.5	40-140		%REC	1	7/17/00
Surr: Aromatic Surrogate OTP	90.0	40-140		%REC	1	7/17/00
Surr: Fractionation Surrogate 2FB	91.0	40-140		%REC	1	7/17/00
MERCURY, TOTAL		**SW7471A**				Analyst: BKO
Mercury	0.18	0.11		mg/Kg-dry	1	7/14/00 2:33:55 PM

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007131
Project: MUDDY RIVER / BOSTON, MA
Lab ID: 0007131-01A

Client Sample ID: SPL-SB3, S-4 - 14-16
Collection Date: 7/11/00 12:35:00 PM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: PC
4,4'-DDD	ND	10		µg/Kg-dry	1	7/17/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/17/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/17/00
Aldrin	ND	10		µg/Kg-dry	1	7/17/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/17/00
beta-BHC	ND	10		µg/Kg-dry	1	7/17/00
Chlordane	ND	50		µg/Kg-dry	1	7/17/00
delta-BHC	ND	10		µg/Kg-dry	1	7/17/00
Dieldrin	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/17/00
Endrin	ND	10		µg/Kg-dry	1	7/17/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/17/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/17/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/17/00
Heptachlor	ND	10		µg/Kg-dry	1	7/17/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/17/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/17/00
Toxaphene	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/17/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	29	0		wt%	1	7/17/00
SILT, BY H/METER		X				Analyst: ADM
SILT	ATTACHED	0		%	1	8/1/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB3, S-4 - 14-16
Lab Order:	0007131	**Collection Date:**	7/11/00 12:35:00 PM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007131-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
C9-C12 Aliphatics	1.0	1.0		mg/Kg-dry	1	7/13/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C9-C12 Aliphatics	2.0	1.0		mg/Kg-dry	1	7/13/00
Benzene	ND	0.10		mg/Kg-dry	1	7/13/00
Toluene	ND	0.10		mg/Kg-dry	1	7/13/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/13/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
MTBE	ND	0.10		mg/Kg-dry	1	7/13/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/13/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/13/00
Surr: PID Surrogate 2,5-DBT	75.0	70-130		%REC	1	7/13/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007131
Project: MUDDY RIVER / BOSTON, MA
Lab ID: 0007131-02A

Client Sample ID: SPL - SB3, S-2 - 4-6
Collection Date: 7/11/00 11:00:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	4.8	0.10		µmhos/cm	1	7/14/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.10	0		pH Units	1	7/13/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	6.5		mg/Kg-dry	1	7/14/00
Barium	18	13		mg/Kg-dry	1	7/14/00
Cadmium	ND	0.65		mg/Kg-dry	1	7/14/00
Chromium	8.1	0.65		mg/Kg-dry	1	7/14/00
Lead	3.4	3.2		mg/Kg-dry	1	7/14/00
Selenium	ND	16		mg/Kg-dry	1	7/14/00
Silver	ND	0.65		mg/Kg-dry	1	7/14/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/17/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/17/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/17/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/17/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/17/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/17/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/17/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/17/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/17/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/17/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/17/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/17/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/17/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/17/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/17/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/17/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/17/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/17/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/17/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/17/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/17/00
Surr: Aliphatic Surrogate COD	56.5	40-140		%REC	1	7/17/00
Surr: Fractionation Surrogate 2BN	102.5	40-140		%REC	1	7/17/00
Surr: Aromatic Surrogate OTP	87.0	40-140		%REC	1	7/17/00
Surr: Fractionation Surrogate 2FB	98.0	40-140		%REC	1	7/17/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL - SB3, S-2 - 4-6
Lab Order:	0007131	**Collection Date:**	7/11/00 11:00:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007131-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **BKO**
Mercury	ND	0.080		mg/Kg-dry	1	7/14/00 2:40:19 PM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **PC**
4,4'-DDD	ND	10		µg/Kg-dry	1	7/17/00
4,4'-DDE	ND	10		µg/Kg-dry	1	7/17/00
4,4'-DDT	ND	10		µg/Kg-dry	1	7/17/00
Aldrin	ND	10		µg/Kg-dry	1	7/17/00
alpha-BHC	ND	10		µg/Kg-dry	1	7/17/00
beta-BHC	ND	10		µg/Kg-dry	1	7/17/00
Chlordane	ND	50		µg/Kg-dry	1	7/17/00
delta-BHC	ND	10		µg/Kg-dry	1	7/17/00
Dieldrin	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan I	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan II	ND	10		µg/Kg-dry	1	7/17/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	7/17/00
Endrin	ND	10		µg/Kg-dry	1	7/17/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	7/17/00
Endrin Ketone	ND	10		µg/Kg-dry	1	7/17/00
gamma-BHC	ND	10		µg/Kg-dry	1	7/17/00
Heptachlor	ND	10		µg/Kg-dry	1	7/17/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	7/17/00
Methoxychlor	ND	10		µg/Kg-dry	1	7/17/00
Toxaphene	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1016	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1221	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1248	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1232	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1242	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1254	ND	50		µg/Kg-dry	1	7/17/00
Aroclor 1260	ND	50		µg/Kg-dry	1	7/17/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	3.4	0		wt%	1	7/17/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	ATTACHED	0		%	1	8/1/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL - SB3, S-2 - 4-6
Lab Order:	0007131	**Collection Date:**	7/11/00 11:00:00 AM
Project:	MUDDY RIVER / BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007131-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C9-C12 Aliphatics	1.3	1.0		mg/Kg-dry	1	7/13/00
Benzene	ND	0.10		mg/Kg-dry	1	7/13/00
Toluene	ND	0.10		mg/Kg-dry	1	7/13/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/13/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
MTBE	ND	0.10		mg/Kg-dry	1	7/13/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/13/00
Surr: FID Surrogate 2,5-DBT	85.0	70-130		%REC	1	7/13/00
Surr: PID Surrogate 2,5-DBT	70.0	70-130		%REC	1	7/13/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007131
Project: MUDDY RIVER / BOSTON, MA
Lab ID: 0007131-03A

Client Sample ID: SPL - SB3, S-3 - 11-13
Collection Date: 7/11/00 11:35:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	16	0.10		µmhos/cm	1	7/14/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	7.30	0		pH Units	1	7/13/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/18/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	ND	6.5		mg/Kg-dry	1	7/14/00
Barium	18	13		mg/Kg-dry	1	7/14/00
Cadmium	0.68	0.65		mg/Kg-dry	1	7/14/00
Chromium	11	0.65		mg/Kg-dry	1	7/14/00
Lead	4.2	3.2		mg/Kg-dry	1	7/14/00
Selenium	ND	16		mg/Kg-dry	1	7/14/00
Silver	ND	0.65		mg/Kg-dry	1	7/14/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	7/19/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	7/19/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/19/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	7/19/00
Naphthalene	ND	0.50		mg/Kg-dry	1	7/19/00
2-Methylnaphthalene	ND	0.50		mg/Kg-dry	1	7/19/00
Acenaphthylene	ND	0.50		mg/Kg-dry	1	7/19/00
Acenaphthene	ND	0.50		mg/Kg-dry	1	7/19/00
Fluorene	ND	0.50		mg/Kg-dry	1	7/19/00
Phenanthrene	ND	0.50		mg/Kg-dry	1	7/19/00
Anthracene	ND	0.50		mg/Kg-dry	1	7/19/00
Fluoranthene	ND	0.50		mg/Kg-dry	1	7/19/00
Pyrene	ND	0.50		mg/Kg-dry	1	7/19/00
Benzo(a)Anthracene	ND	0.50		mg/Kg-dry	1	7/19/00
Chrysene	ND	0.50		mg/Kg-dry	1	7/19/00
Benzo(b)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/19/00
Benzo(k)Fluoranthene	ND	0.50		mg/Kg-dry	1	7/19/00
Benzo(a)Pyrene	ND	0.50		mg/Kg-dry	1	7/19/00
Indeno(1,2,3-cd)Pyrene	ND	0.50		mg/Kg-dry	1	7/19/00
Dibenz(a,h)Anthracene	ND	0.50		mg/Kg-dry	1	7/19/00
Benzo(g,h,i)Perylene	ND	0.50		mg/Kg-dry	1	7/19/00
Surr: Aliphatic Surrogate COD	47.1	40-140		%REC	1	7/19/00
Surr: Fractionation Surrogate 2BN	106.0	40-140		%REC	1	7/19/00
Surr: Aromatic Surrogate OTP	86.5	40-140		%REC	1	7/19/00
Surr: Fractionation Surrogate 2FB	98.0	40-140		%REC	1	7/19/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007131
Project: MUDDY RIVER / BOSTON, MA
Lab ID: 0007131-03A

Client Sample ID: SPL - SB3, S-3 - 11-13
Collection Date: 7/11/00 11:35:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: BKO
Mercury	ND	0.090		mg/Kg-dry	1	7/14/00 2:43:33 PM
PERCENT MOISTURE		**D2216**				Analyst: CR
Percent Moisture	13	0		wt%	1	7/17/00
SILT, BY H/METER		**X**				Analyst: ADM
SILT	ATTACHED	0		%	1	8/1/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/18/00
VOLATILE PETROLEUM HYDROCARBONS		**MAVPH**				Analyst: SP
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/13/00
Unadjusted C9-C12 Aliphatics	1.6	1.0		mg/Kg-dry	1	7/13/00
Benzene	ND	0.10		mg/Kg-dry	1	7/13/00
Toluene	ND	0.10		mg/Kg-dry	1	7/13/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/13/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/13/00
MTBE	ND	0.10		mg/Kg-dry	1	7/13/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/13/00
Surr: FID Surrogate 2,5-DBT	75.0	70-130		%REC	1	7/13/00
Surr: PID Surrogate 2,5-DBT	70.0	70-130		%REC	1	7/13/00

Qualifiers:
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J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

TOXIKON

15 Wiggins Av[illegible]edford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: [illegible]07.137

DUE DATE : 7.25.00

COMPANY: CAMP DRESSER & MCKEE
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE, MA 01876
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: CAROLE KASLICK / MIKE BACHAND
PROJECT ID/LOCATION: MUDDY RIVER / BOSTON MA

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH - with BTEX & MTBE	EPH - with target PAHs	RCRA 8 METALS	PESTICIDES / PCBs	CONDUCTANCE	TCLP METALS	REACTIVITY SULFIDES & CYANIDES	CORROSIVITY	PERCENT WATER	FLASHPOINT & HYDROMETER			SPECIAL INSTRUCTIONS COMMENTS
(1)	SPL-SB3 3-4 14-16	SOIL	1L	G	1	7-11-00	1235PM	NONE			✓	✓	✓	✓	✓	✓	✓	✓			
(2)	SPL-SB3 3-2 4-6	SOIL	1L	G	1	7-11-00	11:00AM	NONE			✓	✓	✓	✓	✓	✓	✓	✓			
(3)	SPL-SB3 3-3 11-13	SOIL	1L	G	2	7-11-00	11:35AM	NONE			✓	✓	✓	✓	✓	✓	✓	✓			
8260	SPL-SB3 S-2 4-6	SOIL		G	1	7-11-00	11:00AM	MEOH	✓	✓											
8260	SPL-SB3 3-3 11-13	SOIL		G	1	7-11-00	11:35AM	MEOH	✓	✓											
8260	SPL-SB3 3-4 14-16	SOIL		G	1	7-11-00	1235PM	MEOH	✓	✓											
				G	1	7-11-00		HCL													TRIP BLANK

SAMPLED BY: M. BACHAND
DATE: 7 . 11 . 00
TIME: 1 . 00 . P.M.

RELINQUISHED BY: [signature]
DATE: 7 . 12 . 00
TIME: 10 25 AM

RELINQUISHED BY: [signature]
DATE: 7 . 13 . 00
TIME: 11 . 30 A.M.

METHOD OF SHIPMENT:

QUOTATION #:

RECEIVED BY: [signature]
DATE: 7 . 13 . 00
TIME: 12 . 25 AM

RECEIVED FOR LAB BY: Andrea Kirk
DATE: 7 . 14 . 00
TIME: 11 . 30

COOLER TEMPERATURE:

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 0007131

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 0007131
MATRIX: SOIL

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Spec. Cond.	0	0-25	102	NA	80-120
Corrosivity	0	0-25	100	NA	80-120
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007131
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	93	80
LCS	99	82
MS0007131.3	83	72
0007131.1	86	73
0007131.2	83	72
0007131.3	77	72

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007131
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	84	70-130
Benzene	81	70-130
Toluene	88	70-130
Ethylbenzene	86	70-130
Xylene (total)	90	70-130
Naphthalene	82	70-130

MATRIX (MS) SPIKE

SPIKE SAMPLE: 0007131.3

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC				QC LIMITS % REC
Methyl-tert-butylether	0	2	1.54	77				70-130
Benzene	0	2	1.41	71				70-130
Toluene	0	2	1.41	71				70-130
Ethylbenzene	0	2	1.52	76				70-130
Xylene (total)	0	6	4.0	71				70-130
Naphthalene	0	2	1.2	60				70-130

D - Indicates Diluted Out
INT - Indicates Interference

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0007131
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	56	79
LCS	55	79
MS0007116.1	8.4	20.9
0007131.1	65	90
0007131.2	56	87
0007131.3	47	86

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0007131
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/13/00
DATE ANALYZED : 7/17/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	26.3	52.6	21.8	43.6
TETRADECANE C14	34.5	69.0	24.5	49.0
NONADECANE C19	36.3	72.6	25.0	50.0
EICOSANE C20	44.1	88.2	30.0	60.0
OCTACOSANE C28	34.3	68.6	23.6	47.2
NAPHTHALENE	33.6	67.2	35.7	71.4
ACENAPHTHENE	34.4	68.8	35.6	71.2
ANTHRACENE	28.8	57.6	30.3	60.6
PYRENE	38.4	76.8	39.2	78.4
CHRYSENE	38.9	77.8	39.7	79.4

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 0007131
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	41.0	70.5
LCS	34.0	52.5
MS0007163.6	51.0	69.5
MSD0007163.6	45.5	63.5
0007131.1	32.0	51.0
0007131.2	15.5	30.0

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES
(METHOD 608/8080)

PROJECT : 0007131
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0007027OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.081	40.5	25-111
Heptachlor	0.2	0.081	40.5	28-122
Aldrin	0.2	0.073	36.5	16-124
Dieldrin	0.2	0.084	42.0	28-128
Endrin	0.2	0.100	50.0	17-158
4,4'-DDT	0.2	0.073	36.5	27-132
*** AROCHLOR 1260	1.0	1.04	103.5	38-144

MATRIX SPIKE SAMPLE : MS0007163.6
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.000	0.0
Heptachlor	0.2	ND	0.020	10.0
Aldrin	0.2	ND	0.013	6.5
Dieldrin	0.2	ND	0.187	93.5
Endrin	0.2	ND	0.178	89.0
4,4'-DDT	0.2	ND	0.104	52.0
*** AROCHLOR 1260	1.0	NA	1.109	110.9

MATRIX SPIKE DUPLICATE : MSD0007163.6
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.000	0.0	0.0	< 15	25-111
Heptachlor	0.2	0.020	10.0	0.0	< 15	28-122
Aldrin	0.2	0.000	0.0	200.0	< 15	16-124
Dieldrin	0.2	0.182	91.0	2.7	< 15	28-128
Endrin	0.2	0.175	87.5	1.7	< 15	17-158
4,4'-DDT	0.2	0.079	39.5	27.3	<15	27-132
*** AROCHLOR 1260	1.0	0.726	72.6	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007131
MATRIX : SOIL

SPIKE SAMPLE: 0007131.1
HG SPIKE SAMPLE: 0007131.1

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	99.8	82.9	0
As	ND	100.8	81.1	12.0
Ba	ND	95.8	84.6	2.3
Cd	ND	100.8	83.6	3.9
Cr	ND	100.6	81.9	5.7
Pb	ND	98.2	NA*	11.1
Se	ND	92.0	110.0	0
Hg	ND	100.2	113.0	46.2

NA* = Not applicable when native concentration exceeds the matrix spike amount added.

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007131
MATRIX : TCLP

SPIKE SAMPLE: 0007131.1
HG SPIKE SAMPLE: 0007131.1

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	88.5	85.6	0
As	ND	87.5	91.0	0.0
Ba	ND	84.6	81.0	4.1
Cd	ND	82.7	82.0	0
Cr	ND	80.8	80.7	0
Pb	ND	82.8	82.0	4.9
Se	ND	90.0	90.8	0
Hg	ND	119.9	119.8	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 02, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER, BOSTON, MA Order No.: 0007279

Dear MIKE BACHAND,

Toxikon received 4 samples on 7/18/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER, BOSTON, MA
Lab Order: 0007279

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0007279

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: _____ Position: LAB MANAGER

Printed Name: Paul Lessard Date: 8/2/00

Toxikon

Date: *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-2 4-6'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:35:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	80	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		SW9045B				Analyst: CR
pH	4.60	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/21/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	9.3	5.5		mg/Kg-dry	1	7/20/00
Barium	23	11		mg/Kg-dry	1	7/20/00
Cadmium	0.91	0.55		mg/Kg-dry	1	7/20/00
Chromium	13	0.55		mg/Kg-dry	1	7/20/00
Lead	20	2.8		mg/Kg-dry	1	7/20/00
Selenium	ND	14		mg/Kg-dry	1	7/20/00
Silver	ND	0.55		mg/Kg-dry	1	7/20/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	110		mg/Kg-dry	1	7/28/00
C19-C36 Aliphatics	ND	110		mg/Kg-dry	1	7/28/00
C11-C22 Aromatics	ND	110		mg/Kg-dry	1	7/28/00
Unadjusted C11-C22 Aromatics	ND	110		mg/Kg-dry	1	7/28/00
Naphthalene	ND	0.54		mg/Kg-dry	1	7/28/00
2-Methylnaphthalene	ND	0.54		mg/Kg-dry	1	7/28/00
Acenaphthylene	ND	0.54		mg/Kg-dry	1	7/28/00
Acenaphthene	ND	0.54		mg/Kg-dry	1	7/28/00
Fluorene	ND	0.54		mg/Kg-dry	1	7/28/00
Phenanthrene	ND	0.54		mg/Kg-dry	1	7/28/00
Anthracene	ND	0.54		mg/Kg-dry	1	7/28/00
Fluoranthene	ND	0.54		mg/Kg-dry	1	7/28/00
Pyrene	ND	0.54		mg/Kg-dry	1	7/28/00
Benzo(a)Anthracene	ND	0.54		mg/Kg-dry	1	7/28/00
Chrysene	ND	0.54		mg/Kg-dry	1	7/28/00
Benzo(b)Fluoranthene	ND	0.54		mg/Kg-dry	1	7/28/00
Benzo(k)Fluoranthene	ND	0.54		mg/Kg-dry	1	7/28/00
Benzo(a)Pyrene	ND	0.54		mg/Kg-dry	1	7/28/00
Indeno(1,2,3-cd)Pyrene	ND	0.54		mg/Kg-dry	1	7/28/00
Dibenz(a,h)Anthracene	ND	0.54		mg/Kg-dry	1	7/28/00
Benzo(g,h,i)Perylene	ND	0.54		mg/Kg-dry	1	7/28/00
Surr: Aliphatic Surrogate COD	54.9	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2BN	90.8	40-140		%REC	1	7/28/00
Surr: Aromatic Surrogate OTP	72.1	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2FB	84.7	40-140		%REC	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-2 4-6'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:35:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.080		mg/Kg-dry	1	7/20/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	11		µg/Kg-dry	1	7/31/00
4,4'-DDE	ND	11		µg/Kg-dry	1	7/31/00
4,4'-DDT	ND	11		µg/Kg-dry	1	7/31/00
Aldrin	ND	11		µg/Kg-dry	1	7/31/00
alpha-BHC	ND	11		µg/Kg-dry	1	7/31/00
beta-BHC	ND	11		µg/Kg-dry	1	7/31/00
Chlordane	ND	54		µg/Kg-dry	1	7/31/00
delta-BHC	ND	11		µg/Kg-dry	1	7/31/00
Dieldrin	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan I	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan II	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	7/31/00
Endrin	ND	11		µg/Kg-dry	1	7/31/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	7/31/00
Endrin Ketone	ND	11		µg/Kg-dry	1	7/31/00
gamma-BHC	ND	11		µg/Kg-dry	1	7/31/00
Heptachlor	ND	11		µg/Kg-dry	1	7/31/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	7/31/00
Methoxychlor	ND	11		µg/Kg-dry	1	7/31/00
Toxaphene	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1016	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1221	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1248	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1232	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1242	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1254	ND	54		µg/Kg-dry	1	7/31/00
Aroclor 1260	ND	54		µg/Kg-dry	1	7/31/00
PERCENT MOISTURE		**D2216**				Analyst: **ADM**
Percent Moisture	6.9	0		wt%	1	7/26/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	7/31/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/21/00

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R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-2 4-6'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:35:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C5-C8 Aliphatics	1.0	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Benzene	ND	0.10		mg/Kg-dry	1	7/25/00
Toluene	ND	0.10		mg/Kg-dry	1	7/25/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/25/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
MTBE	0.17	0.10		mg/Kg-dry	1	7/25/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/25/00
Surr: FID Surrogate 2,5-DBT	86.0	70-130		%REC	1	7/25/00
Surr: PID Surrogate 2,5-DBT	93.0	70-130		%REC	1	7/25/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-3 9-11'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:55:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	70	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	6.70	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/21/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **A**
Arsenic	7.0	5.5		mg/Kg-dry	1	7/20/00
Barium	36	11		mg/Kg-dry	1	7/20/00
Cadmium	0.93	0.55		mg/Kg-dry	1	7/20/00
Chromium	12	0.55		mg/Kg-dry	1	7/20/00
Lead	45	2.8		mg/Kg-dry	1	7/20/00
Selenium	ND	14		mg/Kg-dry	1	7/20/00
Silver	ND	0.55		mg/Kg-dry	1	7/20/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	110		mg/Kg-dry	1	7/28/00
C19-C36 Aliphatics	ND	110		mg/Kg-dry	1	7/28/00
C11-C22 Aromatics	ND	110		mg/Kg-dry	1	7/28/00
Unadjusted C11-C22 Aromatics	ND	110		mg/Kg-dry	1	7/28/00
Naphthalene	ND	0.56		mg/Kg-dry	1	7/28/00
2-Methylnaphthalene	ND	0.56		mg/Kg-dry	1	7/28/00
Acenaphthylene	ND	0.56		mg/Kg-dry	1	7/28/00
Acenaphthene	ND	0.56		mg/Kg-dry	1	7/28/00
Fluorene	ND	0.56		mg/Kg-dry	1	7/28/00
Phenanthrene	ND	0.56		mg/Kg-dry	1	7/28/00
Anthracene	ND	0.56		mg/Kg-dry	1	7/28/00
Fluoranthene	ND	0.56		mg/Kg-dry	1	7/28/00
Pyrene	ND	0.56		mg/Kg-dry	1	7/28/00
Benzo(a)Anthracene	ND	0.56		mg/Kg-dry	1	7/28/00
Chrysene	ND	0.56		mg/Kg-dry	1	7/28/00
Benzo(b)Fluoranthene	ND	0.56		mg/Kg-dry	1	7/28/00
Benzo(k)Fluoranthene	ND	0.56		mg/Kg-dry	1	7/28/00
Benzo(a)Pyrene	ND	0.56		mg/Kg-dry	1	7/28/00
Indeno(1,2,3-cd)Pyrene	ND	0.56		mg/Kg-dry	1	7/28/00
Dibenz(a,h)Anthracene	ND	0.56		mg/Kg-dry	1	7/28/00
Benzo(g,h,i)Perylene	ND	0.56		mg/Kg-dry	1	7/28/00
Surr: Aliphatic Surrogate COD	46.2	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2BN	77.3	40-140		%REC	1	7/28/00
Surr: Aromatic Surrogate OTP	59.6	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2FB	74.7	40-140		%REC	1	7/28/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-3 9-11'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:55:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	0.25	0.080		mg/Kg-dry	1	7/20/00
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	11		µg/Kg-dry	1	7/31/00
4,4'-DDE	ND	11		µg/Kg-dry	1	7/31/00
4,4'-DDT	ND	11		µg/Kg-dry	1	7/31/00
Aldrin	ND	11		µg/Kg-dry	1	7/31/00
alpha-BHC	ND	11		µg/Kg-dry	1	7/31/00
beta-BHC	ND	11		µg/Kg-dry	1	7/31/00
Chlordane	ND	11		µg/Kg-dry	1	7/31/00
delta-BHC	ND	56		µg/Kg-dry	1	7/31/00
Dieldrin	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan I	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan II	ND	11		µg/Kg-dry	1	7/31/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	7/31/00
Endrin	ND	11		µg/Kg-dry	1	7/31/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	7/31/00
Endrin Ketone	ND	11		µg/Kg-dry	1	7/31/00
gamma-BHC	ND	11		µg/Kg-dry	1	7/31/00
Heptachlor	ND	11		µg/Kg-dry	1	7/31/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	7/31/00
Methoxychlor	ND	11		µg/Kg-dry	1	7/31/00
Toxaphene	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1016	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1221	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1248	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1232	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1242	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1254	ND	56		µg/Kg-dry	1	7/31/00
Aroclor 1260	ND	56		µg/Kg-dry	1	7/31/00
PERCENT MOISTURE		D2216				Analyst: ADM
Percent Moisture	11	0		wt%	1	7/26/00
SILT, BY H/METER		X				Analyst: ADM
SILT	SEE ATTACHED	0		%-dry	1	7/31/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-3 9-11'
Lab Order:	0007279	**Collection Date:**	7/17/00 7:55:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Benzene	ND	0.10		mg/Kg-dry	1	7/25/00
Toluene	ND	0.10		mg/Kg-dry	1	7/25/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/25/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
MTBE	ND	0.10		mg/Kg-dry	1	7/25/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/25/00
Surr: FID Surrogate 2,5-DBT	87.5	70-130		%REC	1	7/25/00
Surr: PID Surrogate 2,5-DBT	94.5	70-130		%REC	1	7/25/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-4 14-16'
Lab Order:	0007279	**Collection Date:**	7/17/00 8:10:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	40	0.10		µmhos/cm	1	7/20/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.10	0		pH Units	1	7/18/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/21/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	6.1	5.5		mg/Kg-dry	1	7/20/00
Barium	42	11		mg/Kg-dry	1	7/20/00
Cadmium	0.69	0.55		mg/Kg-dry	1	7/20/00
Chromium	12	0.55		mg/Kg-dry	1	7/20/00
Lead	26	2.8		mg/Kg-dry	1	7/20/00
Selenium	ND	14		mg/Kg-dry	1	7/20/00
Silver	ND	0.55		mg/Kg-dry	1	7/20/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	120		mg/Kg-dry	1	7/28/00
C19-C36 Aliphatics	ND	120		mg/Kg-dry	1	7/28/00
C11-C22 Aromatics	ND	120		mg/Kg-dry	1	7/28/00
Unadjusted C11-C22 Aromatics	ND	120		mg/Kg-dry	1	7/28/00
Naphthalene	ND	0.58		mg/Kg-dry	1	7/28/00
2-Methylnaphthalene	ND	0.58		mg/Kg-dry	1	7/28/00
Acenaphthylene	ND	0.58		mg/Kg-dry	1	7/28/00
Acenaphthene	ND	0.58		mg/Kg-dry	1	7/28/00
Fluorene	ND	0.58		mg/Kg-dry	1	7/28/00
Phenanthrene	ND	0.58		mg/Kg-dry	1	7/28/00
Anthracene	ND	0.58		mg/Kg-dry	1	7/28/00
Fluoranthene	ND	0.58		mg/Kg-dry	1	7/28/00
Pyrene	ND	0.58		mg/Kg-dry	1	7/28/00
Benzo(a)Anthracene	ND	0.58		mg/Kg-dry	1	7/28/00
Chrysene	ND	0.58		mg/Kg-dry	1	7/28/00
Benzo(b)Fluoranthene	ND	0.58		mg/Kg-dry	1	7/28/00
Benzo(k)Fluoranthene	ND	0.58		mg/Kg-dry	1	7/28/00
Benzo(a)Pyrene	ND	0.58		mg/Kg-dry	1	7/28/00
Indeno(1,2,3-cd)Pyrene	ND	0.58		mg/Kg-dry	1	7/28/00
Dibenz(a,h)Anthracene	ND	0.58		mg/Kg-dry	1	7/28/00
Benzo(g,h,i)Perylene	ND	0.58		mg/Kg-dry	1	7/28/00
Surr: Aliphatic Surrogate COD	45.1	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2BN	83.8	40-140		%REC	1	7/28/00
Surr: Aromatic Surrogate OTP	61.2	40-140		%REC	1	7/28/00
Surr: Fractionation Surrogate 2FB	78.1	40-140		%REC	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5, S-4 14-16'
Lab Order:	0007279	**Collection Date:**	7/17/00 8:10:00 AM
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007279-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.080		mg/Kg-dry	1	7/20/00
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	12		µg/Kg-dry	1	7/31/00
4,4'-DDE	ND	12		µg/Kg-dry	1	7/31/00
4,4'-DDT	ND	12		µg/Kg-dry	1	7/31/00
Aldrin	ND	12		µg/Kg-dry	1	7/31/00
alpha-BHC	ND	12		µg/Kg-dry	1	7/31/00
beta-BHC	ND	12		µg/Kg-dry	1	7/31/00
Chlordane	ND	12		µg/Kg-dry	1	7/31/00
delta-BHC	ND	58		µg/Kg-dry	1	7/31/00
Dieldrin	ND	12		µg/Kg-dry	1	7/31/00
Endosulfan I	ND	12		µg/Kg-dry	1	7/31/00
Endosulfan II	ND	12		µg/Kg-dry	1	7/31/00
Endosulfan sulfate	ND	12		µg/Kg-dry	1	7/31/00
Endrin	ND	12		µg/Kg-dry	1	7/31/00
Endrin aldehyde	ND	12		µg/Kg-dry	1	7/31/00
Endrin Ketone	ND	12		µg/Kg-dry	1	7/31/00
gamma-BHC	ND	12		µg/Kg-dry	1	7/31/00
Heptachlor	ND	12		µg/Kg-dry	1	7/31/00
Heptachlor epoxide	ND	12		µg/Kg-dry	1	7/31/00
Methoxychlor	ND	12		µg/Kg-dry	1	7/31/00
Toxaphene	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1016	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1221	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1248	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1232	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1242	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1254	ND	58		µg/Kg-dry	1	7/31/00
Aroclor 1260	ND	58		µg/Kg-dry	1	7/31/00
PERCENT MOISTURE		**D2216**				Analyst: **ADM**
Percent Moisture	13	0		wt%	1	7/26/00
SILT, BY H/METER		**X**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	7/31/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/21/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *02-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007279
Project: MUDDY RIVER, BOSTON, MA
Lab ID: 0007279-03A

Client Sample ID: SPL-SB-5, S-4 14-16'
Collection Date: 7/17/00 8:10:00 AM
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Benzene	ND	0.10		mg/Kg-dry	1	7/25/00
Toluene	ND	0.10		mg/Kg-dry	1	7/25/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/25/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
MTBE	ND	0.10		mg/Kg-dry	1	7/25/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/25/00
Surr: FID Surrogate 2,5-DBT	86.5	70-130		%REC	1	7/25/00
Surr: PID Surrogate 2,5-DBT	96.0	70-130		%REC	1	7/25/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon

Date: *02-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	SPL-SB-5 TRIP
Lab Order:	0007279	**Collection Date:**	7/17/00
Project:	MUDDY RIVER, BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007279-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	7/25/00
Benzene	ND	0.10		mg/Kg-dry	1	7/25/00
Toluene	ND	0.10		mg/Kg-dry	1	7/25/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	7/25/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
o-Xylene	ND	0.10		mg/Kg-dry	1	7/25/00
MTBE	ND	0.10		mg/Kg-dry	1	7/25/00
Naphthalene	ND	0.10		mg/Kg-dry	1	7/25/00
Surr: FID Surrogate 2,5-DBT	98.0	70-130		%REC	1	7/25/00
Surr: PID Surrogate 2,5-DBT	106.0	70-130		%REC	1	7/25/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

TOXIKON
15 Wiggins Av[illegible]edford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 0[illegible]07279

DUE DATE: 7-31-00

COMPANY: Camp Dresser & McKee
ADDRESS: 50 Hampshire St
Cambridge, MA 01876
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: Carole Kisiecki / Mike Bachand
PROJECT ID/LOCATION: Muddy River Boston, MA

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH w/ target PAH's	EPH w/ target PAH's	RCRA 8 Metals	Pesticides/PCB's	Conductivity	TCLP Metals + ignitability, reactivity, corrosivity (if necessary)	Reactivity	Sulfides	Corrosivity	Percent Water	Sieve & Hydrometer	SPECIAL INSTRUCTIONS/ COMMENTS
1	~~SPL-SB-5~~ S-2 4-6	SOIL	1L	G	1	7/17/00	7:35AM	None		✓	✓	✓	✓	✓						
2	~~SPL-SB-5~~ S-3 9-11	SOIL	1L	G	1	7/17/00	7:55AM	None		✓	✓	✓	✓	✓						
3	~~SPL-SB-5~~ S-4 14-16	SOIL	1L	G	1	7/17/00	8:[illegible]AM	None		✓	✓	✓	✓	✓						
1	~~SPL-SB-5~~ S-2 4-6	SOIL		G	1	7/17/00	7:35AM	MeOH	✓											
2	~~SPL-SB-5~~ S-3 9-11	SOIL		G	1	7/17/00	7:55AM	MeOH	✓											
3	~~SPL-SB-5~~ S-4 14-16	SOIL		G	1	7/17/00	8:[illegible]AM	MeOH	✓											
4	~~SPL-SB-5~~ Trip 1			G	1	7/17/00		HCl	✓											Trip Blank

SAMPLED BY: M. BACHAND
DATE: 7.17.00
TIME: 1.00 PM

RELINQUISHED BY: [signature]
DATE: 7.18.00
TIME: 11.10 A.M.

RELINQUISHED BY: [signature]
DATE: 7.18.00
TIME: 1545

METHOD OF SHIPMENT:

QUOTATION #:

RECEIVED BY: [signature]
DATE: 7.18.00
TIME: 11.10 A.M.

RECEIVED FOR LAB BY: Matt Cooper
DATE: 7-18-00
TIME: 3-45 PM

COOLER TEMPERATURE:

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 0007279

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 0007279
MATRIX: SOIL

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Spec. Cond.	0	0-25	102	NA	80-120
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120
pH	0	0-25	100	NA	80-120

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007279
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	96	103
LCS	103	109
MS0007340.10	94	101
DUP0007340.10	95	104
0007279.1	86	93
0007279.2	87	94
0007279.3	87	96
0007279.4	98	106

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007279
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	115	70-130
Benzene	109	70-130
Toluene	122	70-130
Ethylbenzene	124	70-130
Xylene (total)	124	70-130
Naphthalene	112	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0007340.10
SPIKE SAMPLE: 0007340.10

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.0	2	2.06	103.0	0.0	0.0	< 25	70-130
Benzene	0.0	2	1.92	96.0	0.0	0.0	< 25	70-130
Toluene	0.0	2	1.92	96.0	0.0	0.0	< 25	70-130
Ethylbenzene	0.0	2	1.82	91.0	0.0	0.0	< 25	70-130
Xylene (total)	0.0	6	5.50	91.7	0.0	0.0	< 25	70-130
Naphthalene	0.0	2	1.72	86.0	0.0	0.0	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007279
MATRIX : SOIL

SPIKE SAMPLE: 0007279.1
HG SPIKE SAMPLE: 0007279.1

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	107.0	91.2	0
As	ND	97.8	87.6	7.7
Ba	ND	97.2	90.6	4.3
Cd	ND	103.0	87.6	12.5
Cr	ND	103.2	93.6	4.4
Pb	ND	104.0	87.7	7.8
Se	ND	100.0	99.9	0
Hg	ND	117.2	129.8	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007279
MATRIX : TCLP

SPIKE SAMPLE: 0007317.13
HG SPIKE SAMPLE: 0007317.13

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	99.8	80.7	0
As	ND	93.8	96.1	0
Ba	ND	84.6	81.4	0.64
Cd	ND	102.0	102.0	0
Cr	ND	98.5	96.5	0
Pb	ND	102.0	102.0	0
Se	ND	105.0	112.0	0
Hg	ND	114.1	128.4	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0007279
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	78	91
LCS	76	101
MS0007288.1	67	85
0007279.1	59	77
0007279.2	52	67
0007279.3	52	70

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0007279
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/24/00
DATE ANALYZED : 7/28/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	24.8	49.6	23.5	47.0
TETRADECANE C14	34.9	69.8	33.1	66.2
NONADECANE C19	39.5	79.0	35.4	70.8
EICOSANE C20	44.2	88.4	39.7	79.4
OCTACOSANE C28	36.3	72.6	33.3	66.6
NAPHTHALENE	33.0	66.0	28.1	56.2
ACENAPHTHENE	35.6	71.2	29.7	59.4
ANTHRACENE	32.8	65.6	27.8	55.6
PYRENE	41.9	83.8	34.7	69.4
CHRYSENE	41.9	83.8	34.2	68.4

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 0007279
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0007049OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.062	31.0	25-111
Heptachlor	0.2	0.060	30.0	28-122
Aldrin	0.2	0.065	32.5	16-124
Dieldrin	0.2	0.071	35.5	28-128
Endrin	0.2	0.081	40.5	17-158
4,4'-DDT	0.2	0.092	46.0	27-132
*** AROCHLOR 1260	1.0	0.98	97.8	38-144

MATRIX SPIKE SAMPLE : MS0007221.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.082	41.0
Heptachlor	0.2	ND	0.024	12.0
Aldrin	0.2	ND	0.020	10.0
Dieldrin	0.2	ND	0.155	77.5
Endrin	0.2	ND	0.122	61.0
4,4'-DDT	0.2	ND	0.106	53.0
*** AROCHLOR 1260	1.0	ND	0.452	45.2

MATRIX SPIKE DUPLICATE : MSD0007221.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.023	11.5	0.0	< 15	25-111
Heptachlor	0.2	0.019	9.5	23.3	< 15	28-122
Aldrin	0.2	0.028	14.0	33.3	< 15	16-124
Dieldrin	0.2	0.141	70.5	9.5	< 15	28-128
Endrin	0.2	0.103	51.5	16.9	< 15	17-158
4,4'-DDT	0.2	0.045	22.5	80.8	<15	27-132
*** AROCHLOR 1260	1.0	0.252	25.2	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 0007279
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	24.5	37.0
LCS	25.5	43.5
MS0007221.1	27.0	89.5
MSD0007221.1	24.5	60.0
0007279.1	23.0	39.5
0007279.2	16.5	37.0
0007279.3	35.5	66.5

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 23, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER Order No.: 0008037

Dear MIKE BACHAND,

Toxikon received 4 samples on 8/2/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD

Toxikon Date: *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER
Lab Order: 0008037
Date Received: 8/2/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0008037-01A	EC-SB2C, S-2 4-6	8/1/00
0008037-02A	EC-SB2C, S-4 14-16	8/1/00
0008037-03A	EC-SB2C, S-5 20-22	8/1/00
0008037-04A	EC-SB2C, TRIP BLANK	8/1/00

Toxikon Date: *14-Aug-00*

CLIENT: CDM
Project: Maddy River
Lab Order: 0008037

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0008037

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: [signature] Position: LAB MANAGER

Printed Name: Ann Lebedin Date: 8/23/00

Toxikon

Date: *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0008037
Project: MUDDY RIVER
Lab ID: 0008037-01A

Client Sample ID: EC-SB2C, S-2 4-6
Collection Date: 8/1/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	150	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.00	0		pH Units	1	8/1/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	10	7.5		mg/Kg-dry	1	8/4/00
Barium	32	15		mg/Kg-dry	1	8/4/00
Cadmium	ND	0.75		mg/Kg-dry	1	8/4/00
Chromium	13	0.75		mg/Kg-dry	1	8/4/00
Lead	68	3.8		mg/Kg-dry	1	8/4/00
Selenium	ND	19		mg/Kg-dry	1	8/4/00
Silver	ND	0.75		mg/Kg-dry	1	8/4/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	8/10/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	8/10/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/10/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/10/00
Naphthalene	ND	0.52		mg/Kg-dry	1	8/10/00
2-Methylnaphthalene	ND	0.52		mg/Kg-dry	1	8/10/00
Acenaphthylene	ND	0.52		mg/Kg-dry	1	8/10/00
Acenaphthene	ND	0.52		mg/Kg-dry	1	8/10/00
Fluorene	ND	0.52		mg/Kg-dry	1	8/10/00
Phenanthrene	ND	0.52		mg/Kg-dry	1	8/10/00
Anthracene	ND	0.52		mg/Kg-dry	1	8/10/00
Fluoranthene	ND	0.52		mg/Kg-dry	1	8/10/00
Pyrene	ND	0.52		mg/Kg-dry	1	8/10/00
Benzo(a)Anthracene	ND	0.52		mg/Kg-dry	1	8/10/00
Chrysene	ND	0.52		mg/Kg-dry	1	8/10/00
Benzo(b)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/10/00
Benzo(k)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/10/00
Benzo(a)Pyrene	ND	0.52		mg/Kg-dry	1	8/10/00
Indeno(1,2,3-cd)Pyrene	ND	0.52		mg/Kg-dry	1	8/10/00
Dibenz(a,h)Anthracene	ND	0.52		mg/Kg-dry	1	8/10/00
Benzo(g,h,i)Perylene	ND	0.52		mg/Kg-dry	1	8/10/00
Surr: Aliphatic Surrogate COD	62.9	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2BN	99.5	40-140		%REC	1	8/10/00
Surr: Aromatic Surrogate OTP	89.1	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2FB	95.3	40-140		%REC	1	8/10/00

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-2 4-6
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.16	0.083		mg/Kg-dry	1	8/4/00 3:26:23 PM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	10		µg/Kg-dry	1	8/9/00
Aldrin	ND	10		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	10		µg/Kg-dry	1	8/9/00
beta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Chlordane	ND	52		µg/Kg-dry	1	8/9/00
delta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Dieldrin	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	8/9/00
Endrin	ND	10		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	10		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	10		µg/Kg-dry	1	8/9/00
Toxaphene	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	52		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	4.8	0		wt%	1	8/8/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-2 4-6
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
Benzene	ND	0.10		mg/Kg-dry	1	8/9/00
Toluene	ND	0.10		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.10		mg/Kg-dry	1	8/9/00
MTBE	0.12	0.10		mg/Kg-dry	1	8/9/00
Naphthalene	0.11	0.10		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	81.0	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	71.5	70-130		%REC	1	8/9/00

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-4 14-16
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: AK
Specific Conductance	26	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		**SW9045B**				Analyst: CR
pH	7.90	0		pH Units	1	8/1/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		**SW6010B**				Analyst: A
Arsenic	ND	7.5		mg/Kg-dry	1	8/4/00
Barium	14	15		mg/Kg-dry	1	8/4/00
Cadmium	ND	0.75		mg/Kg-dry	1	8/4/00
Chromium	10	0.75		mg/Kg-dry	1	8/4/00
Lead	11	3.8		mg/Kg-dry	1	8/4/00
Selenium	ND	19		mg/Kg-dry	1	8/4/00
Silver	ND	0.75		mg/Kg-dry	1	8/4/00
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	120		mg/Kg-dry	1	8/10/00
C19-C36 Aliphatics	ND	120		mg/Kg-dry	1	8/10/00
C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/10/00
Unadjusted C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/10/00
Naphthalene	ND	0.59		mg/Kg-dry	1	8/10/00
2-Methylnaphthalene	ND	0.59		mg/Kg-dry	1	8/10/00
Acenaphthylene	ND	0.59		mg/Kg-dry	1	8/10/00
Acenaphthene	ND	0.59		mg/Kg-dry	1	8/10/00
Fluorene	ND	0.59		mg/Kg-dry	1	8/10/00
Phenanthrene	ND	0.59		mg/Kg-dry	1	8/10/00
Anthracene	ND	0.59		mg/Kg-dry	1	8/10/00
Fluoranthene	ND	0.59		mg/Kg-dry	1	8/10/00
Pyrene	ND	0.59		mg/Kg-dry	1	8/10/00
Benzo(a)Anthracene	ND	0.59		mg/Kg-dry	1	8/10/00
Chrysene	ND	0.59		mg/Kg-dry	1	8/10/00
Benzo(b)Fluoranthene	ND	0.59		mg/Kg-dry	1	8/10/00
Benzo(k)Fluoranthene	ND	0.59		mg/Kg-dry	1	8/10/00
Benzo(a)Pyrene	ND	0.59		mg/Kg-dry	1	8/10/00
Indeno(1,2,3-cd)Pyrene	ND	0.59		mg/Kg-dry	1	8/10/00
Dibenz(a,h)Anthracene	ND	0.59		mg/Kg-dry	1	8/10/00
Benzo(g,h,i)Perylene	ND	0.59		mg/Kg-dry	1	8/10/00
Surr: Aliphatic Surrogate COD	53.2	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2BN	91.6	40-140		%REC	1	8/10/00
Surr: Aromatic Surrogate OTP	75.4	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2FB	88.6	40-140		%REC	1	8/10/00

Qualifiers:

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0008037
Project: MUDDY RIVER
Lab ID: 0008037-02A

Client Sample ID: EC-SB2C, S-4 14-16
Collection Date: 8/1/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.091		mg/Kg-dry	1	8/4/00 3:29:32 PM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	12		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	12		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	12		µg/Kg-dry	1	8/9/00
Aldrin	ND	12		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	12		µg/Kg-dry	1	8/9/00
beta-BHC	ND	12		µg/Kg-dry	1	8/9/00
Chlordane	ND	59		µg/Kg-dry	1	8/9/00
delta-BHC	ND	12		µg/Kg-dry	1	8/9/00
Dieldrin	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	12		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	12		µg/Kg-dry	1	8/9/00
Endrin	ND	12		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	12		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	12		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	12		µg/Kg-dry	1	8/9/00
Heptachlor	ND	12		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	12		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	12		µg/Kg-dry	1	8/9/00
Toxaphene	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	59		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	59		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	15	0		wt%	1	8/8/00
SILT, BY H/METER		D422				Analyst: ADM
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

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J - Analyte detected below quantitation limits
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* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-4 14-16
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	ND	1.2		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.2		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	1.3	1.2		mg/Kg-dry	1	8/9/00
Benzene	ND	0.12		mg/Kg-dry	1	8/9/00
Toluene	ND	0.12		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.12		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.12		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.12		mg/Kg-dry	1	8/9/00
MTBE	ND	0.12		mg/Kg-dry	1	8/9/00
Naphthalene	ND	0.12		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	85.5	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	73.5	70-130		%REC	1	8/9/00

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S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-5 20-22
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	13	0.10		µmhos/cm	1	8/8/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.60	0		pH Units	1	8/1/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	23	7.5		mg/Kg-dry	1	8/4/00
Barium	68	15		mg/Kg-dry	1	8/4/00
Cadmium	ND	0.75		mg/Kg-dry	1	8/4/00
Chromium	59	0.75		mg/Kg-dry	1	8/4/00
Lead	21	3.8		mg/Kg-dry	1	8/4/00
Selenium	ND	19		mg/Kg-dry	1	8/4/00
Silver	ND	0.75		mg/Kg-dry	1	8/4/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	150		mg/Kg-dry	1	8/10/00
C19-C36 Aliphatics	ND	150		mg/Kg-dry	1	8/10/00
C11-C22 Aromatics	ND	150		mg/Kg-dry	1	8/10/00
Unadjusted C11-C22 Aromatics	ND	150		mg/Kg-dry	1	8/10/00
Naphthalene	ND	0.73		mg/Kg-dry	1	8/10/00
2-Methylnaphthalene	ND	0.73		mg/Kg-dry	1	8/10/00
Acenaphthylene	ND	0.73		mg/Kg-dry	1	8/10/00
Acenaphthene	ND	0.73		mg/Kg-dry	1	8/10/00
Fluorene	ND	0.73		mg/Kg-dry	1	8/10/00
Phenanthrene	ND	0.73		mg/Kg-dry	1	8/10/00
Anthracene	ND	0.73		mg/Kg-dry	1	8/10/00
Fluoranthene	ND	0.73		mg/Kg-dry	1	8/10/00
Pyrene	ND	0.73		mg/Kg-dry	1	8/10/00
Benzo(a)Anthracene	ND	0.73		mg/Kg-dry	1	8/10/00
Chrysene	ND	0.73		mg/Kg-dry	1	8/10/00
Benzo(b)Fluoranthene	ND	0.73		mg/Kg-dry	1	8/10/00
Benzo(k)Fluoranthene	ND	0.73		mg/Kg-dry	1	8/10/00
Benzo(a)Pyrene	ND	0.73		mg/Kg-dry	1	8/10/00
Indeno(1,2,3-cd)Pyrene	ND	0.73		mg/Kg-dry	1	8/10/00
Dibenz(a,h)Anthracene	ND	0.73		mg/Kg-dry	1	8/10/00
Benzo(g,h,i)Perylene	ND	0.73		mg/Kg-dry	1	8/10/00
Surr: Aliphatic Surrogate COD	40.2	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2BN	79.7	40-140		%REC	1	8/10/00
Surr: Aromatic Surrogate OTP	68.5	40-140		%REC	1	8/10/00
Surr: Fractionation Surrogate 2FB	76.7	40-140		%REC	1	8/10/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, S-5 20-22
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.12		mg/Kg-dry	1	8/4/00 3:32:42 PM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	15		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	15		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	15		µg/Kg-dry	1	8/9/00
Aldrin	ND	15		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	15		µg/Kg-dry	1	8/9/00
beta-BHC	ND	15		µg/Kg-dry	1	8/9/00
Chlordane	ND	73		µg/Kg-dry	1	8/9/00
delta-BHC	ND	15		µg/Kg-dry	1	8/9/00
Dieldrin	ND	15		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	15		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	15		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	15		µg/Kg-dry	1	8/9/00
Endrin	ND	15		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	15		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	15		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	15		µg/Kg-dry	1	8/9/00
Heptachlor	ND	15		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	15		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	15		µg/Kg-dry	1	8/9/00
Toxaphene	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	73		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	73		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	32	0		wt%	1	8/8/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	SEE ATTACHED	0		%-dry	1	8/16/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	8/4/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *23-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0008037
Project: MUDDY RIVER
Lab ID: 0008037-03A

Client Sample ID: EC-SB2C, S-5 20-22
Collection Date: 8/1/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.5		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	6.9	1.5		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.5		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.5		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	8.3	1.5		mg/Kg-dry	1	8/9/00
Benzene	ND	0.15		mg/Kg-dry	1	8/9/00
Toluene	ND	0.15		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.15		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.15		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.15		mg/Kg-dry	1	8/9/00
MTBE	ND	0.15		mg/Kg-dry	1	8/9/00
Naphthalene	ND	0.15		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	84.0	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	74.0	70-130		%REC	1	8/9/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon

Date: *23-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB2C, TRIP BLANK
Lab Order:	0008037	**Collection Date:**	8/1/00
Project:	MUDDY RIVER	**Matrix:**	SOIL
Lab ID:	0008037-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	8/9/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/9/00
Benzene	ND	0.10		mg/Kg-dry	1	8/9/00
Toluene	ND	0.10		mg/Kg-dry	1	8/9/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	8/9/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	8/9/00
o-Xylene	ND	0.10		mg/Kg-dry	1	8/9/00
MTBE	ND	0.10		mg/Kg-dry	1	8/9/00
Naphthalene	ND	0.10		mg/Kg-dry	1	8/9/00
Surr: FID Surrogate 2,5-DBT	120.0	70-130		%REC	1	8/9/00
Surr: PID Surrogate 2,5-DBT	107.0	70-130		%REC	1	8/9/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

TOXIKON
15 Wiggins Ave, Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 08-057

DUE DATE: 8-15-00

COMPANY: CDM
ADDRESS: 50 HAMPSHIRE ST
CAMBRIDGE
PHONE #: ( ) 452-6811 FAX #: (452) 2000
P.O. #:
PROJECT MANAGER: CARLIE LESLIE/MIKE BACHAND
PROJECT ID/LOCATION: MOODY ROAD

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VOLATILES	TARGET PAH	EPH - SAME ↑	RCRA 8 METALS	PESTICIDES/PCB	CONDUCTANCE	TCLP METALS + CHROMIUM	REACTIVITY	CORROSIVITY	PERCENT WATER	FLASH & IGNITABILITY	SPECIAL INSTRUCTIONS COMMENTS
1	BC-SB2C S-2 4-6	SOIL	L	G	1	8/1/00		NONE			✓									
2	BC-SB2C S-4 11-14		L								✓									
3	BC SB2C S-5 20-22		L								✓									
1	BC SB2C S2 4-6							MEOH	✓											
2	BC-SB2C S-4 11-16								✓											
3	BC SB2C S-5 20-22								✓											
4	BC SB-2C							HCL	✓											TRIP BLANK

SAMPLED BY: M. BACHAND	DATE: 8-1-00	QUOTATION #:	
RELINQUISHED BY: M. BACHAND	TIME: DATE: 8-2-00 TIME: 11:05 AM	RECEIVED BY:	DATE: 8-2-00 TIME: 11:05 AM
RELINQUISHED BY:	DATE: 8-2-00 TIME: 4:10	RECEIVED FOR LAB BY: Heidi Cooper	DATE: 8-2-00 TIME: 4-10-PM
METHOD OF SHIPMENT		COOLER TEMPERATURE	

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information

Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 0008037

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 0008037
MATRIX: SOIL

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Conductivity	1.5	0-25	99	NA	80-120
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120
pH	0	0-25	102	NA	80-120

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES
(METHOD 608/8080)

PROJECT # : 0008037
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	20.0	43.0
LCS	16.5	46.5
MS0007521.1	27.5	55.5
MSD0007521.1	22.0	55.5
0008037.1	26.0	46.0
0008037.2	16.0	35.5
0008037.3	24.0	35.0

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 0008037
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0008015OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.010	5.0	25-111
Heptachlor	0.2	0.009	4.5	28-122
Aldrin	0.2	0.009	4.5	16-124
Dieldrin	0.2	0.015	7.5	28-128
Endrin	0.2	0.015	7.5	17-158
4,4'-DDT	0.2	0.024	12.0	27-132
*** AROCHLOR 1260	5.0	2.68	53.6	38-144

MATRIX SPIKE SAMPLE : MS0007521.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.006	3.0
Heptachlor	0.2	ND	0.007	3.5
Aldrin	0.2	ND	0.006	3.0
Dieldrin	0.2	ND	0.042	21.0
Endrin	0.2	ND	0.042	21.0
4,4'-DDT	0.2	ND	0.053	26.5
*** AROCHLOR 1260	5.0	NA	2.097	41.9

MATRIX SPIKE DUPLICATE : MSD0007521.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.005	2.5	0.0	< 15	25-111
Heptachlor	0.2	0.006	3.0	15.4	< 15	28-122
Aldrin	0.2	0.005	2.5	18.2	< 15	16-124
Dieldrin	0.2	0.039	19.5	7.4	< 15	28-128
Endrin	0.2	0.039	19.5	7.4	< 15	17-158
4,4'-DDT	0.2	0.053	26.5	0.0	<15	27-132
*** AROCHLOR 1260	5.0	2.02	40.4	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0008037
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/31/00
DATE ANALYZED : 8/3/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	33.3	66.6	26.2	52.4
TETRADECANE C14	40.8	81.6	34.4	68.8
NONADECANE C19	44.3	88.6	38.8	77.6
EICOSANE C20	48.5	97.0	43.5	87.0
OCTACOSANE C28	24.6	49.2	21.7	43.4
NAPHTHALENE	37.5	75.0	3.37	6.7
ACENAPHTHENE	37.9	75.8	20.6	41.2
ANTHRACENE	38.3	76.6	25.9	51.8
PYRENE	40.8	81.6	31.2	62.4
CHRYSENE	40.2	80.4	30.9	61.8

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0008037
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	60	83
LCS	58	89
MS0007492.1	55	71
0008037.1	66	94
0008037.2	63	88
0008037.3	59	100

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0008037
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	113	98
LCS	124	115
MS0007551.5	117	102
DUP0007551.5	119	110
0008037.1	80.9	71.5
0008037.2	85.7	73.4
0008037.3	83.8	73.9
0008037.4	120.7	107.3

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 8037
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	58	70-130
Benzene	83	70-130
Toluene	81	70-130
Ethylbenzene	83	70-130
Xylene (total)	90	70-130
Naphthalene	95	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0007551.5
SPIKE SAMPLE: 0007551.5

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC		% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	4134.7	40	4158	NA*	4184		12	< 25	70-130
Benzene	450.3	40	483	NA*	465.0		32	< 25	70-130
Toluene	1.6	40	34	81	1.7		6.1	< 25	70-130
Ethylbenzene	1.6	40	35	84	1.7		6.1	< 25	70-130
Xylene (total)	2.2	120	109	78	1.5		37.8	< 25	70-130
Naphthalene	1.7	40	40	96	3.2		61.2	< 25	70-130

* NA = not applicable when native concentrations exceed the matrix spike amount added.

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0008037
MATRIX : SOIL

SPIKE SAMPLE: 0007487.17
HG SPIKE SAMPLE: 0007487.17

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	101.4	89.3	0
As	ND	99	92.4	0
Ba	ND	94.2	86.6	9.34
Cd	ND	101.4	90	0
Cr	ND	101.2	90.8	28.2
Pb	ND	101.2	87.7	17.1
Se	ND	98.6	95.8	0
Hg	ND	114.8	115.8	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

August 14, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER/BOSTON, MA Order No.: 0007463

Dear MIKE BACHAND,

Toxikon received 4 samples on 7/27/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Douglas Sheeley

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA0
NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD:

Toxikon Date: *14-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER/BOSTON, MA
Lab Order: 0007463
Date Received: 7/27/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0007463-01A	EC-SB3, S-2 4-6	7/25/00
0007463-02A	EC-SB3, S-3 9-11	7/25/00
0007463-03A	EC-SB3, S-4 14-16	7/25/00
0007463-04A	EC-SB3 TRIP BLANK	7/25/00

Toxikon Date: *14-Aug-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007463
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007463-01A

Client Sample ID: EC-SB3, S-2 4-6
Collection Date: 7/25/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	4.6	0.10		µmhos/cm	1	7/31/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.00	0		pH Units-dry	1	8/1/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: BKO
Arsenic	9.0	6.4		mg/Kg-dry	1	8/1/00
Barium	45	13		mg/Kg-dry	1	8/1/00
Cadmium	1.4	0.64		mg/Kg-dry	1	8/1/00
Chromium	19	0.64		mg/Kg-dry	1	8/1/00
Lead	56	3.2		mg/Kg-dry	1	8/1/00
Selenium	ND	16		mg/Kg-dry	1	8/1/00
Silver	ND	0.64		mg/Kg-dry	1	8/1/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	110		mg/Kg-dry	1	8/2/00
C19-C36 Aliphatics	ND	110		mg/Kg-dry	1	8/2/00
C11-C22 Aromatics	ND	110		mg/Kg-dry	1	8/2/00
Unadjusted C11-C22 Aromatics	ND	110		mg/Kg-dry	1	8/2/00
Naphthalene	ND	0.53		mg/Kg-dry	1	8/2/00
2-Methylnaphthalene	ND	0.53		mg/Kg-dry	1	8/2/00
Acenaphthylene	ND	0.53		mg/Kg-dry	1	8/2/00
Acenaphthene	ND	0.53		mg/Kg-dry	1	8/2/00
Fluorene	ND	0.53		mg/Kg-dry	1	8/2/00
Phenanthrene	ND	0.53		mg/Kg-dry	1	8/2/00
Anthracene	ND	0.53		mg/Kg-dry	1	8/2/00
Fluoranthene	ND	0.53		mg/Kg-dry	1	8/2/00
Pyrene	ND	0.53		mg/Kg-dry	1	8/2/00
Benzo(a)Anthracene	ND	0.53		mg/Kg-dry	1	8/2/00
Chrysene	ND	0.53		mg/Kg-dry	1	8/2/00
Benzo(b)Fluoranthene	ND	0.53		mg/Kg-dry	1	8/2/00
Benzo(k)Fluoranthene	ND	0.53		mg/Kg-dry	1	8/2/00
Benzo(a)Pyrene	ND	0.53		mg/Kg-dry	1	8/2/00
Indeno(1,2,3-cd)Pyrene	ND	0.53		mg/Kg-dry	1	8/2/00
Dibenz(a,h)Anthracene	ND	0.53		mg/Kg-dry	1	8/2/00
Benzo(g,h,i)Perylene	ND	0.53		mg/Kg-dry	1	8/2/00
Surr: Aliphatic Surrogate COD	51.0	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2BN	96.8	40-140		%REC	1	8/2/00
Surr: Aromatic Surrogate OTP	78.1	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2FB	89.3	40-140		%REC	1	8/2/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon

Date: *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-2 4-6
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	0.72	0.079		mg/Kg-dry	1	8/1/00 11:24:25 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	11		µg/Kg-dry	1	8/7/00
4,4'-DDE	ND	11		µg/Kg-dry	1	8/7/00
4,4'-DDT	ND	11		µg/Kg-dry	1	8/7/00
Aldrin	ND	11		µg/Kg-dry	1	8/7/00
alpha-BHC	ND	11		µg/Kg-dry	1	8/7/00
beta-BHC	ND	11		µg/Kg-dry	1	8/7/00
Chlordane	ND	53		µg/Kg-dry	1	8/7/00
delta-BHC	ND	11		µg/Kg-dry	1	8/7/00
Dieldrin	ND	11		µg/Kg-dry	1	8/7/00
Endosulfan I	ND	11		µg/Kg-dry	1	8/7/00
Endosulfan II	ND	11		µg/Kg-dry	1	8/7/00
Endosulfan sulfate	ND	11		µg/Kg-dry	1	8/7/00
Endrin	ND	11		µg/Kg-dry	1	8/7/00
Endrin aldehyde	ND	11		µg/Kg-dry	1	8/7/00
Endrin Ketone	ND	11		µg/Kg-dry	1	8/7/00
gamma-BHC	ND	11		µg/Kg-dry	1	8/7/00
Heptachlor	ND	11		µg/Kg-dry	1	8/7/00
Heptachlor epoxide	ND	11		µg/Kg-dry	1	8/7/00
Methoxychlor	ND	11		µg/Kg-dry	1	8/7/00
Toxaphene	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1016	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1221	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1248	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1232	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1242	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1254	ND	53		µg/Kg-dry	1	8/7/00
Aroclor 1260	ND	53		µg/Kg-dry	1	8/7/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	6.5	0		wt%	1	8/1/00
SILT, BY H/METER		**D422**				Analyst: **AY**
SILT	SEE ATTACHED	0		%-dry	1	8/14/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-2 4-6
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.1		mg/Kg-dry	1	8/3/00
C9-C12 Aliphatics	ND	1.1		mg/Kg-dry	1	8/3/00
C9-10 Aromatics	ND	1.1		mg/Kg-dry	1	8/3/00
Unadjusted C5-C8 Aliphatics	ND	1.1		mg/Kg-dry	1	8/3/00
Unadjusted C9-C12 Aliphatics	ND	1.1		mg/Kg-dry	1	8/3/00
Benzene	ND	0.11		mg/Kg-dry	1	8/3/00
Toluene	ND	0.11		mg/Kg-dry	1	8/3/00
Ethylbenzene	ND	0.11		mg/Kg-dry	1	8/3/00
m+p-Xylene	ND	0.11		mg/Kg-dry	1	8/3/00
o-Xylene	ND	0.11		mg/Kg-dry	1	8/3/00
MTBE	0.19	0.11		mg/Kg-dry	1	8/3/00
Naphthalene	ND	0.11		mg/Kg-dry	1	8/3/00
Surr: FID Surrogate 2,5-DBT	90.5	70-130		%REC	1	8/3/00
Surr: PID Surrogate 2,5-DBT	87.5	70-130		%REC	1	8/3/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-3 9-11
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: **AK**
Specific Conductance	13	0.10		µmhos/cm	1	7/31/00
CORROSIVITY		**SW9045B**				Analyst: **CR**
pH	6.90	0		pH Units-dry	1	8/1/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: **AK**
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		**SW6010B**				Analyst: **BKO**
Arsenic	14	8.8		mg/Kg-dry	1	8/1/00
Barium	32	18		mg/Kg-dry	1	8/1/00
Cadmium	0.80	0.88		mg/Kg-dry	1	8/1/00
Chromium	13	0.88		mg/Kg-dry	1	8/1/00
Lead	75	4.4		mg/Kg-dry	1	8/1/00
Selenium	ND	22		mg/Kg-dry	1	8/1/00
Silver	ND	0.88		mg/Kg-dry	1	8/1/00
MA EPH		**MAEPH**				Analyst: **YK**
C9-C18 Aliphatic Hrdrocarbons	ND	150		mg/Kg-dry	1	8/2/00
C19-C36 Aliphatics	ND	150		mg/Kg-dry	1	8/2/00
C11-C22 Aromatics	ND	150		mg/Kg-dry	1	8/2/00
Unadjusted C11-C22 Aromatics	ND	150		mg/Kg-dry	1	8/2/00
Naphthalene	ND	0.74		mg/Kg-dry	1	8/2/00
2-Methylnaphthalene	ND	0.74		mg/Kg-dry	1	8/2/00
Acenaphthylene	ND	0.74		mg/Kg-dry	1	8/2/00
Acenaphthene	ND	0.74		mg/Kg-dry	1	8/2/00
Fluorene	ND	0.74		mg/Kg-dry	1	8/2/00
Phenanthrene	ND	0.74		mg/Kg-dry	1	8/2/00
Anthracene	ND	0.74		mg/Kg-dry	1	8/2/00
Fluoranthene	ND	0.74		mg/Kg-dry	1	8/2/00
Pyrene	ND	0.74		mg/Kg-dry	1	8/2/00
Benzo(a)Anthracene	ND	0.74		mg/Kg-dry	1	8/2/00
Chrysene	ND	0.74		mg/Kg-dry	1	8/2/00
Benzo(b)Fluoranthene	ND	0.74		mg/Kg-dry	1	8/2/00
Benzo(k)Fluoranthene	ND	0.74		mg/Kg-dry	1	8/2/00
Benzo(a)Pyrene	ND	0.74		mg/Kg-dry	1	8/2/00
Indeno(1,2,3-cd)Pyrene	ND	0.74		mg/Kg-dry	1	8/2/00
Dibenz(a,h)Anthracene	ND	0.74		mg/Kg-dry	1	8/2/00
Benzo(g,h,i)Perylene	ND	0.74		mg/Kg-dry	1	8/2/00
Surr: Aliphatic Surrogate COD	52.4	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2BN	63.2	40-140		%REC	1	8/2/00
Surr: Aromatic Surrogate OTP	64.3	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2FB	68.3	40-140		%REC	1	8/2/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-3 9-11
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: AS
Mercury	0.18	0.11		mg/Kg-dry	1	8/1/00 11:27:37 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: YK
4,4'-DDD	ND	15		µg/Kg-dry	1	8/7/00
4,4'-DDE	ND	15		µg/Kg-dry	1	8/7/00
4,4'-DDT	ND	15		µg/Kg-dry	1	8/7/00
Aldrin	ND	15		µg/Kg-dry	1	8/7/00
alpha-BHC	ND	15		µg/Kg-dry	1	8/7/00
beta-BHC	ND	15		µg/Kg-dry	1	8/7/00
Chlordane	ND	74		µg/Kg-dry	1	8/7/00
delta-BHC	ND	15		µg/Kg-dry	1	8/7/00
Dieldrin	ND	15		µg/Kg-dry	1	8/7/00
Endosulfan I	ND	15		µg/Kg-dry	1	8/7/00
Endosulfan II	ND	15		µg/Kg-dry	1	8/7/00
Endosulfan sulfate	ND	15		µg/Kg-dry	1	8/7/00
Endrin	ND	15		µg/Kg-dry	1	8/7/00
Endrin aldehyde	ND	15		µg/Kg-dry	1	8/7/00
Endrin Ketone	ND	15		µg/Kg-dry	1	8/7/00
gamma-BHC	ND	15		µg/Kg-dry	1	8/7/00
Heptachlor	ND	15		µg/Kg-dry	1	8/7/00
Heptachlor epoxide	ND	15		µg/Kg-dry	1	8/7/00
Methoxychlor	ND	15		µg/Kg-dry	1	8/7/00
Toxaphene	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1016	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1221	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1248	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1232	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1242	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1254	ND	74		µg/Kg-dry	1	8/7/00
Aroclor 1260	ND	74		µg/Kg-dry	1	8/7/00
PERCENT MOISTURE		**D2216**				Analyst: CR
Percent Moisture	32	0		wt%	1	8/1/00
SILT, BY H/METER		**D422**				Analyst: AY
SILT	SEE ATTACHED	0		%-dry	1	8/14/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-3 9-11
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		**MAVPH**				Analyst: **CR**
C5-C8 Aliphatics	ND	1.5		mg/Kg-dry	1	8/3/00
C9-C12 Aliphatics	ND	1.5		mg/Kg-dry	1	8/3/00
C9-10 Aromatics	ND	1.5		mg/Kg-dry	1	8/3/00
Unadjusted C5-C8 Aliphatics	ND	1.5		mg/Kg-dry	1	8/3/00
Unadjusted C9-C12 Aliphatics	ND	1.5		mg/Kg-dry	1	8/3/00
Benzene	ND	0.15		mg/Kg-dry	1	8/3/00
Toluene	ND	0.15		mg/Kg-dry	1	8/3/00
Ethylbenzene	ND	0.15		mg/Kg-dry	1	8/3/00
m+p-Xylene	ND	0.15		mg/Kg-dry	1	8/3/00
o-Xylene	ND	0.15		mg/Kg-dry	1	8/3/00
MTBE	ND	0.15		mg/Kg-dry	1	8/3/00
Naphthalene	ND	0.15		mg/Kg-dry	1	8/3/00
Surr: FID Surrogate 2,5-DBT	92.0	70-130		%REC	1	8/3/00
Surr: PID Surrogate 2,5-DBT	89.5	70-130		%REC	1	8/3/00

Qualifiers:

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J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon Date: *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-4 14-16
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	26	0.10		µmhos/cm	1	7/31/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.40	0		pH Units-dry	1	8/1/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg	1	7/28/00
ICP METALS, TOTAL		SW6010B				Analyst: BKO
Arsenic	ND	7.0		mg/Kg-dry	1	8/1/00
Barium	17	14		mg/Kg-dry	1	8/1/00
Cadmium	ND	0.70		mg/Kg-dry	1	8/1/00
Chromium	9.3	0.70		mg/Kg-dry	1	8/1/00
Lead	12	3.5		mg/Kg-dry	1	8/1/00
Selenium	ND	17		mg/Kg-dry	1	8/1/00
Silver	ND	0.70		mg/Kg-dry	1	8/1/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	120		mg/Kg-dry	1	8/2/00
C19-C36 Aliphatics	ND	120		mg/Kg-dry	1	8/2/00
C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/2/00
Unadjusted C11-C22 Aromatics	ND	120		mg/Kg-dry	1	8/2/00
Naphthalene	ND	0.58		mg/Kg-dry	1	8/2/00
2-Methylnaphthalene	ND	0.58		mg/Kg-dry	1	8/2/00
Acenaphthylene	ND	0.58		mg/Kg-dry	1	8/2/00
Acenaphthene	ND	0.58		mg/Kg-dry	1	8/2/00
Fluorene	ND	0.58		mg/Kg-dry	1	8/2/00
Phenanthrene	ND	0.58		mg/Kg-dry	1	8/2/00
Anthracene	ND	0.58		mg/Kg-dry	1	8/2/00
Fluoranthene	ND	0.58		mg/Kg-dry	1	8/2/00
Pyrene	ND	0.58		mg/Kg-dry	1	8/2/00
Benzo(a)Anthracene	ND	0.58		mg/Kg-dry	1	8/2/00
Chrysene	ND	0.58		mg/Kg-dry	1	8/2/00
Benzo(b)Fluoranthene	ND	0.58		mg/Kg-dry	1	8/2/00
Benzo(k)Fluoranthene	ND	0.58		mg/Kg-dry	1	8/2/00
Benzo(a)Pyrene	ND	0.58		mg/Kg-dry	1	8/2/00
Indeno(1,2,3-cd)Pyrene	ND	0.58		mg/Kg-dry	1	8/2/00
Dibenz(a,h)Anthracene	ND	0.58		mg/Kg-dry	1	8/2/00
Benzo(g,h,i)Perylene	ND	0.58		mg/Kg-dry	1	8/2/00
Surr: Aliphatic Surrogate COD	60.9	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2BN	82.4	40-140		%REC	1	8/2/00
Surr: Aromatic Surrogate OTP	73.4	40-140		%REC	1	8/2/00
Surr: Fractionation Surrogate 2FB	83.2	40-140		%REC	1	8/2/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-4 14-16
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.091		mg/Kg-dry	1	8/1/00 11:30:49 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4´-DDD	ND	12		µg/Kg-dry	1	8/7/00
4,4´-DDE	ND	12		µg/Kg-dry	1	8/7/00
4,4´-DDT	ND	12		µg/Kg-dry	1	8/7/00
Aldrin	ND	12		µg/Kg-dry	1	8/7/00
alpha-BHC	ND	12		µg/Kg-dry	1	8/7/00
beta-BHC	ND	12		µg/Kg-dry	1	8/7/00
Chlordane	ND	58		µg/Kg-dry	1	8/7/00
delta-BHC	ND	12		µg/Kg-dry	1	8/7/00
Dieldrin	ND	12		µg/Kg-dry	1	8/7/00
Endosulfan I	ND	12		µg/Kg-dry	1	8/7/00
Endosulfan II	ND	12		µg/Kg-dry	1	8/7/00
Endosulfan sulfate	ND	12		µg/Kg-dry	1	8/7/00
Endrin	ND	12		µg/Kg-dry	1	8/7/00
Endrin aldehyde	ND	12		µg/Kg-dry	1	8/7/00
Endrin Ketone	ND	12		µg/Kg-dry	1	8/7/00
gamma-BHC	ND	12		µg/Kg-dry	1	8/7/00
Heptachlor	ND	12		µg/Kg-dry	1	8/7/00
Heptachlor epoxide	ND	12		µg/Kg-dry	1	8/7/00
Methoxychlor	ND	12		µg/Kg-dry	1	8/7/00
Toxaphene	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1016	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1221	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1248	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1232	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1242	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1254	ND	58		µg/Kg-dry	1	8/7/00
Aroclor 1260	ND	58		µg/Kg-dry	1	8/7/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	14	0		wt%	1	8/1/00
SILT, BY H/METER		**D422**				Analyst: **AY**
SILT	SEE ATTACHED	0		%-dry	1	8/14/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg	1	7/28/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *14-Aug-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3, S-4 14-16
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007463-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/3/00
C9-C12 Aliphatics	ND	1.2		mg/Kg-dry	1	8/3/00
C9-10 Aromatics	ND	1.2		mg/Kg-dry	1	8/3/00
Unadjusted C5-C8 Aliphatics	ND	1.2		mg/Kg-dry	1	8/3/00
Unadjusted C9-C12 Aliphatics	ND	1.2		mg/Kg-dry	1	8/3/00
Benzene	ND	0.12		mg/Kg-dry	1	8/3/00
Toluene	ND	0.12		mg/Kg-dry	1	8/3/00
Ethylbenzene	ND	0.12		mg/Kg-dry	1	8/3/00
m+p-Xylene	ND	0.12		mg/Kg-dry	1	8/3/00
o-Xylene	ND	0.12		mg/Kg-dry	1	8/3/00
MTBE	ND	0.12		mg/Kg-dry	1	8/3/00
Naphthalene	ND	0.12		mg/Kg-dry	1	8/3/00
Surr: FID Surrogate 2,5-DBT	99.5	70-130		%REC	1	8/3/00
Surr: PID Surrogate 2,5-DBT	96.0	70-130		%REC	1	8/3/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB3 TRIP BLANK
Lab Order:	0007463	**Collection Date:**	7/25/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	TRIP BLANK
Lab ID:	0007463-04A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		**MAVPH**				Analyst: **CR**
C5-C8 Aliphatics	ND	50		µg/L	1	7/29/00
C9-C12 Aliphatics	ND	50		µg/L	1	7/29/00
C9-10 Aromatics	ND	50		µg/L	1	7/29/00
Unadjusted C5-C8 Aliphatics	ND	50		µg/L	1	7/29/00
Unadjusted C9-C12 Aliphatics	ND	50		µg/L	1	7/29/00
Benzene	ND	2.0		µg/L	1	7/29/00
Toluene	ND	2.0		µg/L	1	7/29/00
Ethylbenzene	ND	2.0		µg/L	1	7/29/00
m+p-Xylene	ND	2.0		µg/L	1	7/29/00
o-Xylene	ND	2.0		µg/L	1	7/29/00
MTBE	ND	2.0		µg/L	1	7/29/00
Naphthalene	ND	2.0		µg/L	1	7/29/00
Surr: FID Surrogate 2,5-DBT	98.8	70-130		%REC	1	7/29/00
Surr: PID Surrogate 2,5-DBT	102.8	70-130		%REC	1	7/29/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

15 Wiggins Ave Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: [illegible]-07[illegible]63

DUE DATE: 8-8-00

COMPANY: Camp Dresser & McKee
ADDRESS: 50 Hampshire St
Cambridge MA
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: Carole Lisiecki / Mike Bachand
PROJECT ID/LOCATION: Muddy River / Boston MA

SAMPLE TYPE: 1. WASTEWATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. DRINKING WATER, 6. WATER (GW/MW/SW), 7. OTHER (SPECIFY)
CONTAINER TYPE: P - PLASTIC, G - GLASS, V - VOA

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	VPH - w/ TARGET PAH's	EPH - w/ TARGET PAH's	RCRA 8 METALS	PESTICIDES/PCB's	CONDUCTANCE	TCLP METALS + FULL TCLP METALS & REACTIVITY	REACTIVITY	CORROSIVITY	IGNITABILITY	SULFIDE	HYDROMETER	SPECIAL INSTRUCTIONS COMMENTS
1	~~BC-SB3~~ S-2 4-6	SOIL	1L	G	1	7/25/00		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	~~BC-SB3~~ S-3 9-11	SOIL	1L	G	1			NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	~~BC-SB3~~ S-4 14-16	SOIL	1L	G	1			NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
1	~~BC-SB3~~ S-2 4-6	SOIL		G	1			MeOH	✓											
2	~~BC-SB3~~ S-3 9-11	SOIL		G	1			MeOH	✓											
3	~~BC-SB3~~ S-4 14-16	SOIL		G	1			MeOH	✓											
4	~~BC-SB3~~			G	1			HCL	✓											FIELD BLANK

SAMPLED BY: M. Bachand
DATE: 7-25-00
TIME: 1:00 pm

RELINQUISHED BY:
DATE: 7-27-00
TIME: 09:45

RELINQUISHED BY:
DATE: 7-27-00
TIME: 11:50 AM

METHOD OF SHIPMENT:

QUOTATION #:

RECEIVED BY:
DATE: 7-27-00
TIME: 09:45

RECEIVED FOR LAB BY: Heath Cooper
DATE: 7-27-00
TIME: 11:50 AM

COOLER TEMPERATURE:

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

CASE NARRATIVE

Work Order: 0007463

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 0007463
MATRIX: WATER

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
Reactive Cyanide	NA	0-25	NA	NA	80-120
Reactive Sulfide	NA	0-25	NA	NA	80-120
Conductivity	0	0-25	102	NA	80-120
Corrosivity	0	0-25	102	NA	80-120

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007463
MATRIX: SOIL

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	112	106
LCS	112	108
0007463.1	90	87
0007463.2	92	90
0007463.3	100	96

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007463
MATRIX: SOIL

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	79	70-130
Benzene	73	70-130
Toluene	83	70-130
Ethylbenzene	82	70-130
Xylene (total)	81	70-130
Naphthalene	99	70-130

SURROGATE RECOVERY
VOLATILE PETROLEUM HYDROCARBONS

PROJECT: 0007463
MATRIX: WATER

SAMPLE ID	FID SURROGATE % RECOVERY	PID SURROGATE % RECOVERY
METHOD BLANK	92	97
LCS	98	106
MS0007355.3	87	94
DUP0007355.3	94	99
0007463.4	99	103

QC LIMIT 70-130 QC LIMIT 70-130

D - Indicates Diluted Out
INT - Indicates Interference

SPIKE RECOVERY
VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSIS

PROJECT: 0007463
MATRIX: WATER

COMPONENT SPIKE (SPIKE BLANK)

COMPOUND	SPIKE % REC	QC LIMITS % REC
Methyl-tert-butylether	91	70-130
Benzene	86	70-130
Toluene	97	70-130
Ethylbenzene	101	70-130
Xylene (total)	106	70-130
Naphthalene	118	70-130

DUPLICATE AND LABORATORY FORTIFIED MATRIX (LFM) SPIKE

DUPLICATE SAMPLE: 0007355.3
SPIKE SAMPLE: 0007355.3

COMPOUND	SAMPLE CONC	MATRIX SPIKE ADDED	MATRIX SPIKE RES	(SPIKE - SAMPLE) % REC	DUP SAMPLE CONC	% RPD	QC LIMITS % RPD	QC LIMITS % REC
Methyl-tert-butylether	0.0	40	31.2	78.0	0.0	0.0	< 25	70-130
Benzene	0.0	40	30.0	75.0	0.0	0.0	< 25	70-130
Toluene	0.3	40	32.7	81.0	0.3	0.0	< 25	70-130
Ethylbenzene	0.0	40	33.6	84.0	0.4	NA	< 25	70-130
Xylene (total)	0.0	120	105.6	88.0	1.3	NA	< 25	70-130
Naphthalene	1.2	40	42.0	102.0	2.1	NA	< 25	70-130

D - Indicates Diluted Out
INT - Indicates Interference

SURROGATE RECOVERY
EXTRACTABLE PETROLEUM HYDROCARBONS

PROJECT: 0007463
MATRIX: SOIL

SAMPLE ID	COD PERCENT RECOVERY	OTP PERCENT RECOVERY
METHOD BLANK	85	99
LCS	46	63
MS0007372.1	86	84
0007463.1	55	83
0007463.2	77	94
0007463.3	71	86

QC Limit 40 - 140 QC Limit 40 - 140

Chloro-octadecane (COD)
Ortho-terphenyl (OTP)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

EPH --- QUALITY CONTROL DATA SHEET

PROJECT # : 0007463
MATRIX : SOIL
UNITS : ug/L
INSTRUMENT : HP 7

DATE EXTRACTED : 7/26/00
DATE ANALYZED : 7/28/00
METHOD : EPH
DETECTOR : FID

COMPOUND	LCS CONC.	LCS REC.	MS CONC.	MS % REC.
NONANE C9	20.1	40.2	27.5	55.0
TETRADECANE C14	26.5	53.0	68.7	137.4
NONADECANE C19	28.9	57.8	54.3	108.6
EICOSANE C20	33.4	66.8	59.8	119.6
OCTACOSANE C28	16.4	32.8	53.6	107.2
NAPHTHALENE	20.7	41.4	42.0	84.0
ACENAPHTHENE	26.3	52.6	43.0	86.0
ANTHRACENE	18.8	37.6	50.8	101.6
PYRENE	30.1	60.2	64.1	128.2
CHRYSENE	17.8	35.6	58.4	116.8

D - Indicates Diluted Out
INT - Indicates Interference
NC-Indicates Not Calculated Due to Matrix Interferences

TOXIKON

GC PESTICIDES/PCB ANALYSIS SURROGATE RECOVERIES (METHOD 608/8080)

PROJECT # : 0007463
MATRIX : SOIL

SAMPLE ID	2,4,5,6-Tetrachloro-M-Xylene	Decachlorobiphenyl
METHOD BLANK	26.0	52.0
LCS	18.5	48.0
MS0007357.1	39.0	54.5
MSD0007357.1	37.0	62.0
0007463.1	40.0	58.0
0007463.2	38.0	65.5
0007463.3	28.0	57.0

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

GC PESTICIDES/PCB ANALYSIS MS/MSD RECOVERIES (METHOD 608/8080)

PROJECT : 0007463
MATRIX : SOIL

LABORATORY CONTROL SPIKE LCS0007065OE

COMPOUND	SPIKE ADDED (ug)	CONTROL SPIKE (ug)	CONTROL % RECOVERY	QC LIMITS
gamma-BHC (Lindane)	0.2	0.047	23.5	25-111
Heptachlor	0.2	0.047	23.5	28-122
Aldrin	0.2	0.052	26.0	16-124
Dieldrin	0.2	0.078	39.0	28-128
Endrin	0.2	0.077	38.5	17-158
4,4'-DDT	0.2	0.084	42.0	27-132
*** AROCHLOR 1260	1.0	1.08	107.7	38-144

MATRIX SPIKE SAMPLE : MS0007357.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	SAMPLE CONC. (ug)	MS CONC. (ug)	MS % RECOVERY
gamma-BHC (Lindane)	0.2	ND	0.046	23.0
Heptachlor	0.2	ND	0.038	19.0
Aldrin	0.2	ND	0.036	18.0
Dieldrin	0.8	ND	0.288	36.0
Endrin	0.8	ND	0.196	24.5
4,4'-DDT	0.8	ND	0.191	23.9
*** AROCHLOR 1260	5.0	ND	3.052	61.0

MATRIX SPIKE DUPLICATE : MSD0007357.1
DILUTION : 1X

COMPOUND	SPIKE ADDED (ug)	MSD CONC. (ug)	MSD % RECOVERY	% RPD	QC LIMITS %RPD	QC LIMITS RECOVERY
gamma-BHC (Lindane)	0.2	0.037	18.5	21.7	< 15	25-111
Heptachlor	0.2	0.037	18.5	2.7	< 15	28-122
Aldrin	0.2	0.032	16.0	11.8	< 15	16-124
Dieldrin	0.8	0.188	23.5	42.0	< 15	28-128
Endrin	0.8	0.188	23.5	4.2	< 15	17-158
4,4'-DDT	0.8	0.178	22.3	7.0	<15	27-132
*** AROCHLOR 1260	5.0	1.62	32.4	4.5	<15	38-144

*** Arochlor units in ppm (mg/L) (for "PCB ONLY" analysis)

D - Indicates Diluted Out
INT - Indicates Interference

TOXIKON

QC SUMMARY - METALS

PROJECT : 0007463
MATRIX : SOIL

SPIKE SAMPLE: 0007484.7
HG SPIKE SAMPLE: 0007484.12

ANALYTE	METHOD BLANK	LCS (% REC)	MS (% REC)	DUPLICATE (% RPD)
Ag	ND	104.0	94.8	0
As	ND	106.0	97.8	0
Ba	ND	98.6	92.4	8.8
Cd	ND	106.0	95.3	0
Cr	ND	105.4	95.7	4.9
Pb	ND	105.8	98.2	9.0
Se	ND	102.2	92.8	0
Hg	ND	106.1	115.3	0

ACCEPTANCE CRITERIA

ANALYTE	METHOD BLANK	MS (% REC)	LCS (% REC)	DUPLICATE (% RPD)
Ag	BDL	65 - 125	80 - 120	<25
Hg	BDL	75 - 125	80 - 120	<25
All Others	BDL	80 - 120	80 - 120	<25

TOXIKON CORPORATION
15 WIGGINS AVENUE
BEDFORD, MA 01730
TEL: (781) 275-3330

September 01, 2000

MIKE BACHAND
CAMP DRESSER & McKEE
50 HAMPSHIRE STREET
CAMBRIDGE, MA 02139
TEL: (617) 452-6000
FAX (617) 452-8000

RE: MUDDY RIVER/BOSTON, MA Order No.: 0007521

Dear MIKE BACHAND,

Toxikon received 4 samples on 7/28/00 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in a Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Paul Lezberg

Certifications: MA: MA 064, NH: 204099A and 204099B, ME: MA064, RI: 55, VT: MA064, TN: MA NY: 10778, FL: E87143 and 87394, NC: 286, PA 68-461, CT: PH 0563, NJ: 59538, MD

Toxikon **Date:** *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE
Project:	MUDDY RIVER/BOSTON, MA
Lab Order:	0007521
Date Received:	7/28/00

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date
0007521-01A	EC-SB4, S-2 4-6	7/26/00
0007521-02A	EC-SB4, S-3 9-11	7/26/00
0007521-03A	EC-SB4, S-5 19-21	7/26/00
0007521-04A	EC-SB4	7/26/00

Toxikon

CLIENT: CDM
Project: Muddy River / Boston MA
Lab Order: 0007521

CASE NARRATIVE

Massachusetts EPH/VPH Certification
Toxikon Work Order 0007521

Were all QA/QC procedures REQUIRED by the VPH method followed? Yes ✓ No ___
Were all QA/QC procedures REQUIRED by the EPH method followed? Yes ✓ No ___
Were all performance/acceptance standards for the required QA/QC procedures achieved? Yes ✓ No ___

Were VPH soil samples received fully immersed in methanol? Yes ✓ No ___
Were samples receives at 4 degrees C? Temperature at receipt 4.0 C.

Details regarding any answer "No" above are provided below.

Were any significant modifications made to the EPH/VPH methods as specified in Section 11.3?
Yes ___ No ✓

Surrogate recoveries for all samples are indicated on each result sheet.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report it, to the best of my knowledge and belief, accurate and complete.

Signature: _____ **Position:** LAB MANAGER

Printed Name: PAUL LEBERU **Date:** 9/1/10

CLIENT: CAMP DRESSER & McKEE
Project: MUDDY RIVER/BOSTON, MA
Lab Order: 0007521

CASE NARRATIVE

Trip blank broken during processing. No data is available.

Toxikon

Date: *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-2 4-6
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	6.5	0.10		µmhos/cm-dry	1	8/7/00
CORROSIVITY		SW9045B				Analyst: CR
pH	7.20	0		pH Units	1	7/28/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg-dry	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	6.5		mg/Kg-dry	1	8/3/00
Barium	18	13		mg/Kg-dry	1	8/3/00
Cadmium	ND	0.65		mg/Kg-dry	1	8/3/00
Chromium	8.8	0.65		mg/Kg-dry	1	8/3/00
Lead	8.6	3.2		mg/Kg-dry	1	8/3/00
Selenium	ND	16		mg/Kg-dry	1	8/3/00
Silver	ND	0.65		mg/Kg-dry	1	8/3/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	8/8/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	8/8/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/8/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/8/00
Naphthalene	ND	0.52		mg/Kg-dry	1	8/8/00
2-Methylnaphthalene	ND	0.52		mg/Kg-dry	1	8/8/00
Acenaphthylene	ND	0.52		mg/Kg-dry	1	8/8/00
Acenaphthene	ND	0.52		mg/Kg-dry	1	8/8/00
Fluorene	ND	0.52		mg/Kg-dry	1	8/8/00
Phenanthrene	ND	0.52		mg/Kg-dry	1	8/8/00
Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(a)Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Chrysene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(b)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(k)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(a)Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Indeno(1,2,3-cd)Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Dibenz(a,h)Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(g,h,i)Perylene	ND	0.52		mg/Kg-dry	1	8/8/00
Surr: Aliphatic Surrogate COD	64.0	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2BN	74.2	40-140		%REC	1	8/8/00
Surr: Aromatic Surrogate OTP	82.0	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2FB	101.4	40-140		%REC	1	8/8/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-2 4-6
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-01A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.081		mg/Kg-dry	1	8/4/00 9:18:39 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	10		µg/Kg-dry	1	8/9/00
Aldrin	ND	10		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	10		µg/Kg-dry	1	8/9/00
beta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Chlordane	ND	52		µg/Kg-dry	1	8/9/00
delta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Dieldrin	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	8/9/00
Endrin	ND	10		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	10		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	10		µg/Kg-dry	1	8/9/00
Toxaphene	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	52		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	3.0	0		wt%	1	8/4/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	ATTACHED	0		%-dry	1	9/1/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	100		mg/Kg-dry	1	8/4/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon **Date:** *01-Sep-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007521
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007521-01A

Client Sample ID: EC-SB4, S-2 4-6
Collection Date: 7/26/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	8/5/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
Benzene	ND	0.10		mg/Kg-dry	1	8/5/00
Toluene	ND	0.10		mg/Kg-dry	1	8/5/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	8/5/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	8/5/00
o-Xylene	ND	0.10		mg/Kg-dry	1	8/5/00
MTBE	ND	0.10		mg/Kg-dry	1	8/5/00
Naphthalene	ND	0.10		mg/Kg-dry	1	8/5/00
Surr: FID Surrogate 2,5-DBT	88.0	70-130		%REC	1	8/5/00
Surr: PID Surrogate 2,5-DBT	87.0	70-130		%REC	1	8/5/00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Toxikon **Date:** *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-3 9-11
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		E120.1				Analyst: AK
Specific Conductance	6.0	0.10		µmhos/cm-dry	1	8/7/00
CORROSIVITY		SW9045B				Analyst: CR
pH	8.00	0		pH Units	1	7/28/00
CYANIDE, REACTIVE		SW7.3.3.2				Analyst: AK
Reactive Cyanide	ND	100		mg/Kg-dry	1	8/4/00
ICP METALS, TOTAL		SW6010B				Analyst: A
Arsenic	ND	6.5		mg/Kg-dry	1	8/3/00
Barium	19	13		mg/Kg-dry	1	8/3/00
Cadmium	ND	0.65		mg/Kg-dry	1	8/3/00
Chromium	10	0.65		mg/Kg-dry	1	8/3/00
Lead	4.7	3.2		mg/Kg-dry	1	8/3/00
Selenium	ND	16		mg/Kg-dry	1	8/3/00
Silver	ND	0.65		mg/Kg-dry	1	8/3/00
MA EPH		MAEPH				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	100		mg/Kg-dry	1	8/8/00
C19-C36 Aliphatics	ND	100		mg/Kg-dry	1	8/8/00
C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/8/00
Unadjusted C11-C22 Aromatics	ND	100		mg/Kg-dry	1	8/8/00
Naphthalene	ND	0.52		mg/Kg-dry	1	8/8/00
2-Methylnaphthalene	ND	0.52		mg/Kg-dry	1	8/8/00
Acenaphthylene	ND	0.52		mg/Kg-dry	1	8/8/00
Acenaphthene	ND	0.52		mg/Kg-dry	1	8/8/00
Fluorene	ND	0.52		mg/Kg-dry	1	8/8/00
Phenanthrene	ND	0.52		mg/Kg-dry	1	8/8/00
Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(a)Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Chrysene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(b)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(k)Fluoranthene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(a)Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Indeno(1,2,3-cd)Pyrene	ND	0.52		mg/Kg-dry	1	8/8/00
Dibenz(a,h)Anthracene	ND	0.52		mg/Kg-dry	1	8/8/00
Benzo(g,h,i)Perylene	ND	0.52		mg/Kg-dry	1	8/8/00
Surr: Aliphatic Surrogate COD	72.2	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2BN	60.2	40-140		%REC	1	8/8/00
Surr: Aromatic Surrogate OTP	80.4	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2FB	81.4	40-140		%REC	1	8/8/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Toxikon

Date: *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-3 9-11
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		SW7471A				Analyst: AS
Mercury	ND	0.083		mg/Kg-dry	1	8/4/00 9:25:02 AM
ORGANOCHLORINE PEST/PCB		SW8081A				Analyst: YK
4,4'-DDD	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	10		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	10		µg/Kg-dry	1	8/9/00
Aldrin	ND	10		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	10		µg/Kg-dry	1	8/9/00
beta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Chlordane	ND	52		µg/Kg-dry	1	8/9/00
delta-BHC	ND	10		µg/Kg-dry	1	8/9/00
Dieldrin	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	10		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	10		µg/Kg-dry	1	8/9/00
Endrin	ND	10		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	10		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	10		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor	ND	10		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	10		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	10		µg/Kg-dry	1	8/9/00
Toxaphene	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	52		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	52		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		D2216				Analyst: CR
Percent Moisture	3.7	0		wt%	1	8/4/00
SILT, BY H/METER		D422				Analyst: ADM
SILT	ATTACHED	0		%-dry	1	9/1/00
SULFIDE, REACTIVE		SW7.3.4.2				Analyst: AK
Reactive Sulfide	ND	100		mg/Kg-dry	1	8/4/00

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Toxikon **Date:** *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-3 9-11
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-02A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
C9-10 Aromatics	ND	1.0		mg/Kg-dry	1	8/5/00
Unadjusted C5-C8 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
Unadjusted C9-C12 Aliphatics	ND	1.0		mg/Kg-dry	1	8/5/00
Benzene	ND	0.10		mg/Kg-dry	1	8/5/00
Toluene	ND	0.10		mg/Kg-dry	1	8/5/00
Ethylbenzene	ND	0.10		mg/Kg-dry	1	8/5/00
m+p-Xylene	ND	0.10		mg/Kg-dry	1	8/5/00
o-Xylene	ND	0.10		mg/Kg-dry	1	8/5/00
MTBE	ND	0.10		mg/Kg-dry	1	8/5/00
Naphthalene	ND	0.10		mg/Kg-dry	1	8/5/00
Surr: FID Surrogate 2,5-DBT	88.5	70-130		%REC	1	8/5/00
Surr: PID Surrogate 2,5-DBT	86.5	70-130		%REC	1	8/5/00

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E - Value above quantitation range

Toxikon **Date:** *01-Sep-00*

CLIENT: CAMP DRESSER & McKEE
Lab Order: 0007521
Project: MUDDY RIVER/BOSTON, MA
Lab ID: 0007521-03A

Client Sample ID: EC-SB4, S-5 19-21
Collection Date: 7/26/00
Matrix: SOIL

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
CONDUCTANCE		**E120.1**				Analyst: AK
Specific Conductance	140	0.14		µmhos/cm-dry	1	8/7/00
CORROSIVITY		**SW9045B**				Analyst: CR
pH	8.00	0		pH Units	1	7/28/00
CYANIDE, REACTIVE		**SW7.3.3.2**				Analyst: AK
Reactive Cyanide	ND	140		mg/Kg-dry	1	8/4/00
ICP METALS, TOTAL		**SW6010B**				Analyst: A
Arsenic	7.0	6.5		mg/Kg-dry	1	8/3/00
Barium	28	13		mg/Kg-dry	1	8/3/00
Cadmium	0.83	0.65		mg/Kg-dry	1	8/3/00
Chromium	23	0.65		mg/Kg-dry	1	8/3/00
Lead	10	3.2		mg/Kg-dry	1	8/3/00
Selenium	ND	16		mg/Kg-dry	1	8/3/00
Silver	ND	0.65		mg/Kg-dry	1	8/3/00
MA EPH		**MAEPH**				Analyst: YK
C9-C18 Aliphatic Hrdrocarbons	ND	140		mg/Kg-dry	1	8/8/00
C19-C36 Aliphatics	ND	140		mg/Kg-dry	1	8/8/00
C11-C22 Aromatics	ND	140		mg/Kg-dry	1	8/8/00
Unadjusted C11-C22 Aromatics	ND	140		mg/Kg-dry	1	8/8/00
Naphthalene	ND	0.68		mg/Kg-dry	1	8/8/00
2-Methylnaphthalene	ND	0.68		mg/Kg-dry	1	8/8/00
Acenaphthylene	ND	0.68		mg/Kg-dry	1	8/8/00
Acenaphthene	ND	0.68		mg/Kg-dry	1	8/8/00
Fluorene	ND	0.68		mg/Kg-dry	1	8/8/00
Phenanthrene	ND	0.68		mg/Kg-dry	1	8/8/00
Anthracene	ND	0.68		mg/Kg-dry	1	8/8/00
Fluoranthene	ND	0.68		mg/Kg-dry	1	8/8/00
Pyrene	ND	0.68		mg/Kg-dry	1	8/8/00
Benzo(a)Anthracene	ND	0.68		mg/Kg-dry	1	8/8/00
Chrysene	ND	0.68		mg/Kg-dry	1	8/8/00
Benzo(b)Fluoranthene	ND	0.68		mg/Kg-dry	1	8/8/00
Benzo(k)Fluoranthene	ND	0.68		mg/Kg-dry	1	8/8/00
Benzo(a)Pyrene	ND	0.68		mg/Kg-dry	1	8/8/00
Indeno(1,2,3-cd)Pyrene	ND	0.68		mg/Kg-dry	1	8/8/00
Dibenz(a,h)Anthracene	ND	0.68		mg/Kg-dry	1	8/8/00
Benzo(g,h,i)Perylene	ND	0.68		mg/Kg-dry	1	8/8/00
Surr: Aliphatic Surrogate COD	44.7	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2BN	75.7	40-140		%REC	1	8/8/00
Surr: Aromatic Surrogate OTP	60.2	40-140		%REC	1	8/8/00
Surr: Fractionation Surrogate 2FB	71.7	40-140		%REC	1	8/8/00

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E - Value above quantitation range

Toxikon **Date:** *01-Sep-00*

CLIENT:	CAMP DRESSER & McKEE	**Client Sample ID:**	EC-SB4, S-5 19-21
Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
MERCURY, TOTAL		**SW7471A**				Analyst: **AS**
Mercury	ND	0.098		mg/Kg-dry	1	8/4/00 9:28:14 AM
ORGANOCHLORINE PEST/PCB		**SW8081A**				Analyst: **YK**
4,4'-DDD	ND	14		µg/Kg-dry	1	8/9/00
4,4'-DDE	ND	14		µg/Kg-dry	1	8/9/00
4,4'-DDT	ND	14		µg/Kg-dry	1	8/9/00
Aldrin	ND	14		µg/Kg-dry	1	8/9/00
alpha-BHC	ND	14		µg/Kg-dry	1	8/9/00
beta-BHC	ND	14		µg/Kg-dry	1	8/9/00
Chlordane	ND	68		µg/Kg-dry	1	8/9/00
delta-BHC	ND	14		µg/Kg-dry	1	8/9/00
Dieldrin	ND	14		µg/Kg-dry	1	8/9/00
Endosulfan I	ND	14		µg/Kg-dry	1	8/9/00
Endosulfan II	ND	14		µg/Kg-dry	1	8/9/00
Endosulfan sulfate	ND	14		µg/Kg-dry	1	8/9/00
Endrin	ND	14		µg/Kg-dry	1	8/9/00
Endrin aldehyde	ND	14		µg/Kg-dry	1	8/9/00
Endrin Ketone	ND	14		µg/Kg-dry	1	8/9/00
gamma-BHC	ND	14		µg/Kg-dry	1	8/9/00
Heptachlor	ND	14		µg/Kg-dry	1	8/9/00
Heptachlor epoxide	ND	14		µg/Kg-dry	1	8/9/00
Methoxychlor	ND	14		µg/Kg-dry	1	8/9/00
Toxaphene	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1016	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1221	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1248	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1232	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1242	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1254	ND	68		µg/Kg-dry	1	8/9/00
Aroclor 1260	ND	68		µg/Kg-dry	1	8/9/00
PERCENT MOISTURE		**D2216**				Analyst: **CR**
Percent Moisture	26	0		wt%	1	8/4/00
SILT, BY H/METER		**D422**				Analyst: **ADM**
SILT	ATTACHED	0		%-dry	1	9/1/00
SULFIDE, REACTIVE		**SW7.3.4.2**				Analyst: **AK**
Reactive Sulfide	ND	140		mg/Kg-dry	1	8/4/00

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Lab Order:	0007521	**Collection Date:**	7/26/00
Project:	MUDDY RIVER/BOSTON, MA	**Matrix:**	SOIL
Lab ID:	0007521-03A		

Analyses	Result	Rpt Limit	Qual	Units	DF	Date Analyzed
VOLATILE PETROLEUM HYDROCARBONS		MAVPH				Analyst: CR
C5-C8 Aliphatics	ND	1.4		mg/Kg-dry	1	8/5/00
C9-C12 Aliphatics	ND	1.4		mg/Kg-dry	1	8/5/00
C9-10 Aromatics	ND	1.4		mg/Kg-dry	1	8/5/00
Unadjusted C5-C8 Aliphatics	ND	1.4		mg/Kg-dry	1	8/5/00
Unadjusted C9-C12 Aliphatics	ND	1.4		mg/Kg-dry	1	8/5/00
Benzene	ND	0.14		mg/Kg-dry	1	8/5/00
Toluene	ND	0.14		mg/Kg-dry	1	8/5/00
Ethylbenzene	ND	0.14		mg/Kg-dry	1	8/5/00
m+p-Xylene	ND	0.14		mg/Kg-dry	1	8/5/00
o-Xylene	ND	0.14		mg/Kg-dry	1	8/5/00
MTBE	ND	0.14		mg/Kg-dry	1	8/5/00
Naphthalene	ND	0.14		mg/Kg-dry	1	8/5/00
Surr: FID Surrogate 2,5-DBT	90.0	70-130		%REC	1	8/5/00
Surr: PID Surrogate 2,5-DBT	88.0	70-130		%REC	1	8/5/00

Qualifiers:

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TOXIKON

15 Wiggins Ave Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 0[illegible].01.321

DUE DATE: 8.9.00

COMPANY: CAMP DRESSER & MCKEE
ADDRESS: 50 HAMPSHIRE ST 01876
CAMBRIDGE MA 01876
PHONE #: (617) 452-6000 FAX #: (617) 452-8000
P.O. #:
PROJECT MANAGER: CAROLE ROSELLE / MOLLY BACHAND
PROJECT ID/LOCATION: MURRAY RIVER / BOSTON MA

SAMPLE TYPE: 1. WASTEWATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. DRINKING WATER, 6. WATER (GW/MW/SW), 7. OTHER (SPECIFY)
CONTAINER TYPE: P - PLASTIC, G - GLASS, V - VOA

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	ANALYSES: VPH - w/TARGET PAH's	EPH - w/TARGET PAHs	RCRA 8 METALS	PESTICIDES/PCBs	CONDUCTANCE	TCLP METALS (Mercury 7470, others 6010)	REACTIVITY SULFIDE (SW-846 Chapter 7)	CORROSIVITY	PERCENT WATER	SOLVE & HYDROMETER	SPECIAL INSTRUCTIONS/ COMMENT
1	EC-SB4 S-2 4-6	SOIL	1L	G	1	7/26/00		NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	EC-SB4 S-3 9-11	SOIL	1L	G	1			NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	EC-SB4 S-5 A-21	SOIL	1L	G	1			NONE		✓	✓	✓	✓	✓	✓	✓	✓	✓	
1	EC-SB4 S-2 4-6	SOIL		G	1			MeOH	✓										
2	EC-SB4 S-3 9-11	SOIL		G	1			MeOH	✓										
3	EC-SB4 S-5 14-16	SOIL		G	1			MeOH	✓										
4	EC-SB4			G	1			HCL	✓										TRIP BLANK

SAMPLED BY: M[illegible]ALD
DATE: 7.26.00
TIME: 1.00 PM

RELINQUISHED BY:
DATE: 7.27.00
TIME: 13-15-

RECEIVED BY:
DATE: 7.28.00
TIME: 13-15-

RELINQUISHED BY:
DATE: 7.27.00
TIME: 12:00

RECEIVED FOR LAB BY:
DATE: 7.28.00
TIME: 3.00 PM

COMMENT:

QUOTATION #:

COOLER TEMPERATURE

☐ RUSH ..... BUSINESS DAY TURN AROUND
☑ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

Appendix F

Appendix F
Maintenance Plan

DRAFT
MAINTENANCE PLAN FOR
THE EMERALD NECKLACE-MUDDY RIVER PARKS
MUDDY RIVER RESTORATION PROJECT






CITY OF BOSTON PARKS AND RECREATION

TOWN OF BROOKLINE PARKS AND OPEN SPACE DIVISION

METROPOLITAN DISTRICT COMMISSION

ETM ASSOCIATES, L.L.C.
PUBLIC SPACE DESIGN AND MANAGEMENT
73 WOODBRIDGE AVENUE
HIGHLAND PARK, NJ 08904-3207
732.572.6626
ETMASSOC.LLC@VERIZON.NET

01 JANUARY 2003

Emerald Necklace Maintenance Plan

Purpose of the Plan

The purpose of this Plan is to recommend standards to guide the maintenance of the Muddy River Parks of the Emerald Necklace, map the park areas, and to estimate the time needed to meet those standards.

1. General Approach

The factors that influence the maintenance work in a large urban park, are both complex and unpredictable. The two primary determinants of work are:

- The Park's physical setting — its diverse landscapes, historic structures, recreational areas and;
- The visitors: how many there are and how they use the Park.

Weather – rain or extreme heat – is a factor and impacts park work by influencing the physical setting and usage.

A great deal of park maintenance work is repetitive and boring, making it difficult to motivate people over a sustained period of time. Thus park maintenance is hard to manage. How much work is necessary today is also affected by how much work was done yesterday. Deferred maintenance increases workload.

The Relationship Between Usage And Maintenance.

Park visitors not only greatly increase the time required to repair and preserve the Park's physical setting, but also create an enormous daily cleaning burden. Cleaning up after visitors can be the most time-consuming.

In general, the greater the number of visitors, the greater the amount of maintenance work that needs to be done. How long people stay and what they do when they get there is also important. Five busy vandals can create more work than 1,000 people strolling through the Park. On average though, with a typical cross-section of park visitors, a 20,000 visitor day is likely to produce twice as much litter to clean up, trash to remove, and damage to restore as a 10,000 visitor day. Of course, maintenance also impacts use. If the Park is dirty, if benches are broken, people won't enjoy it as much, and eventually may stop coming. If it's very well maintained, then more people will come.

Given this interdependence between maintenance and use, it is important that the Park "keep up" – that as visitors continue to increase, the quality and quantity of maintenance keep pace.

2. Map and Quantify Physical Areas of the Park by Sectors

Sectors

The Muddy River Parks of the Emerald Necklace has been divided into 7 geographic sectors for analysis and planning purposes – taking into account current responsibilities and the physical settings.

Sector I	Charlesgate
Sector IIA	Back Bay Fens North: Victory Gardens/Mother's Rest
Sector IIB	Back Bay Fens Central: Rose Garden/Clemente Field
Sector IIC	Back Bay Fens South and Sears Parking Lot
Sector III	Riverway
Sector IVA	Olmsted Park North: Leverett Pond/Daisy Pond
Sector IV B	Olmsted Park South: Wards Pond/Willow Pond/Nicholson Hill

The Olmsted Park North: Leverett Pond/Daisy Field is the largest of the sectors areas totaling 48 acres or 26% of the Par; followed by Back Bay Fens Central: Rose Garden/Clemente Field (35 acres) and the Riverway (31 acres). These three sectors comprise 62% of the of the Muddy River parks of the Emerald Necklace

Physical Areas

The Muddy River Parks of the Emerald Necklace is a varied and complex landscape for a relatively small area. The physical areas in the Park have been divided into three categories:

Natural Areas – Open, natural areas, subdivided into:

- Woodlands
- Parkland
- Water/Watercourse
- Gardens

Paved Areas – Open to the elements, but covered by a man-made surface, including parking lots, playgrounds, paths, etc.

Structures – Enclosed or partially enclosed areas, subdivided into:

- Buildings
- Monuments
- Drinking Fountains

The major physical areas found in The Muddy River Parks of the Emerald Necklace are:

- Woodlands -4%
- Turf/Parkland – 28%
- Planting Areas – 2.5%
- Grasslands –21%
- Paved Areas –7.5%
- Water – 23%

Relatively few park furnishings such as benches and drinking fountains are found throughout the Muddy River Parks of the Emerald Necklace

The Definition of Seasons

Seasons are determined by weather, growing characteristics, and usage. It appears that from the vantage point of maintaining The Muddy River Parks of the Emerald Necklace. The year can be divided into four: spring, summer, fall and winter.

In general, use is the more important determinant of cleaning work (delittering and trash removal) and growing conditions are the most important determinant of mowing and horticulture. Weather of course influences both, but is the most difficult to predict and can't be controlled.

Seasons

Winter	Dec – Feb	13 weeks
Spring	March – May	13 weeks
Summer	June – Aug.	13 weeks
Fall	Sept – Nov	13 weeks

Workload Associated with Higher Standards

From interviews with park managers and observations in the Park, it appears that additional hours of work are needed annually to bring park maintenance to a higher level.

The following areas should be priorities:

Additional Cleaning
There are areas of the Park, particularly in woodlands, that need more cleaning and the Park needs to be cleaned more thoroughly, particularly after peak days.

Arboriculture (tree management)
Extra support is needed for tree maintenance. Existing trees are in need of pruning and in some cases removal. A new park-wide replanting plan is needed to serve as a guide for new tree plantings.

Water Body Management and Related Horticulture
The soon to be renovated Muddy River requires a new level of maintenance – the edges need to be delittered, algae and other growth contained, control of invasive vegetation, water quality maintained, silt build-up monitored, and embankment edges maintained.

Turf Care
Additional support is needed for improved turf practices including regular soil testing, aeration, fertilizing, and annual turf renovation.

Horticultural Care
Increased horticultural practices and support are needed to maintain the new Muddy River embankment. In addition, park-wide horticultural plantings and the rose garden requires increased support.

Erosion Control
As a mature landscape with a high volume of use, the Muddy River Parks of the Emerald Necklace is subject to regular erosion. Erosion areas should be stabilized immediately before soil loss occurs and causes siltation of waterbodies and catch basins.

3. Recommended Park Maintenance Standards by Physical Area

Woodlands
Woodland Level I – Trees inspected and pruned as necessary for health and safety biannually, weekly trash pickup, woodland thinned out every five years
Woodland Level II – Woodland safety pruned every five years, hazard trees removed as required, trash pickup as required

Turf
Turf Level I – Grass mowed at least once every 5 -7 working days. Overseeded annually, aerated once a year, disease and fertilizer treatment, snow fence erected to protect grass
Turf Level II– Regular mowing, not necessarily every 7-12 working days; fertilized when necessary, routine aerations, some weeds and bare spots acceptable, but routinely corrected;
Turf Level III – No fertilizer; no irrigation, occasional repair, mowing on a 14-18 working day cycle, some weeds tolerated, turf can be allowed to wear out and grow through rest cycles;

Meadows
Meadow Level I – Trash removed weekly, meadow mowed four times per year.
Meadow Level II – Trash removed based on inspection, Meadow mowed twice per year.

Athletic Fields
Level I – Trash removed daily, infield dragged once/week from April – August, no infield depressions, backstops and seating in good repair, fields relined as necessary, turf mowed weekly, irrigated regularly.

Planting Areas
Planting Area Level I – Shrub beds and small trees are edged and mulched each spring. Shrub beds are maintained and weeded on an ongoing basis. Shrub beds and small trees are watered as required. Trash removal completed 3 times per week.

Planting Area Level II- Shrub beds and small trees are edged and mulched each spring. Shrub beds are maintained and weeded 4 times per year. Shrub beds and small trees are watered as required. Trash removal completed once per week.

Planting Area Level III - Shrub beds and small trees are edged and mulched biannually. Shrub beds are maintained and weeded two times per year. Trash removal completed once per month.

Gardens

Level I – Maintained on an annual basis at a high level of horticultural care; weeding, irrigation, fertilizing, disease control, disbudding done weekly.

Embankment Plantings
Embankment Planting Level I – Plantings are maintained by properly trained personnel monthly. Invasive species are removed on a monthly basis. Replacement plants are installed seasonally.

Embankment Planting Level II - Plantings are maintained by properly trained personnel four times per year. Invasive species are removed on a quarterly basis. Replacement plants are installed seasonally.

Embankment Planting Level III - - Plantings are maintained by properly trained personnel two times per year. Invasive species are removed on an annual basis.

WaterCourse (10' zone from embankment edge into water)
Watercourse Level I – Trash removed from watercourse weekly. A small boat is utilized monthly to access the watercourse and remove debris.

Watercourse Level II – Trash removed from watercourse on a quarterly basis. A small boat is utilized quarterly to access the watercourse and remove debris.

Site Furnishings
Site Furnishing Level I – Site Furnishings are inspected weekly and routine repairs done within 3-5 working days.

Trash
Trash Removal Level I – Minimum of once a day 7 days/week. No overflowing cans. May require more than one servicing/day.
Trash Removal Level II – Minimum of once a day, 5 days/ week. Cans may be overflowing occasionally. Use may dictate more frequent cleaning.
Trash removal Level III – Minimum servicing 2 to 3 times/ week.

Paved Surfaces
Paved Surfaces Level I – Sweeping, cleaning, and washing of surfaces done weekly so there is no accumulation of sand, dirt, or leaves accumulate.
Paved Surfaces Level II – Should be cleaned when there is a noticeable accumulation of debris.

Structures
Small, routine in-house repairs done within 3-5 working days. Contracted repairs assessed within 3-5 working days.

Playgrounds
Playgrounds Level I – Playgrounds are inspected daily, trash is removed daily, paved surfaces are swept daily, equipment is maintained and repairs are done within 3-5 working days.

Graffiti Removal
Level I – Removed within 24 hours
Level II – Removed within 48 hours

The Total Estimated Workload

It's estimated that 43,765 hours of work will be needed to maintain the Muddy River Parks of the Emerald Necklace — taking into account current standards, improved standards and the impact of capital projects.

Exhibit 1 presents the estimated work by Sectors and Task.

Summary:

	Hours at Current Standards	Hours at Higher Standards	Estimated Total Hours
Boston	8,387	20,283	28,670
Brookline	3,155	5,095	8,250
MDC	1,562	5,283	6,845

Note: Hours are totals of Net Productive Time for field staff, does not include supervisory or management staff.

Impact of Capital Projects and Higher Standards - Additional Work

Capital Projects

The increase in capital spending will inflate the gap between available and needed maintenance hours. While under construction, the affected areas are usually closed off to the public for the length of the project, which slightly reduces the immediate maintenance workload. When completed and reopened, the renovated site will add to the existing maintenance load. The Muddy River Restoration Project will add dramatically to the maintenance load.

When the Muddy River Restoration Project is completed, there will be an increase of approximately 21.5 acres of newly restored landscape including 15 acres of lawn, 6 acres of new plantings and more than 200 trees that will require regular maintenance, particularly after the two-year maintenance period expires. In addition, there will be "new" park areas created from "daylighting" of the Sears parking area and the area next to the Fens Bridge which total that will have to be maintained.

The table below shows where the additional hours of maintenance will be needed that don't exist now but will due to future capital projects and setting higher maintenance standards.

"Daylighting" Sears Parking Lot Area (Sector IIC)	45,000 sq. ft.	600 hrs
Fens Bridge Area (Sector IIC)	30,000 sq. ft.	460 hrs
Embankment Plantings Maintenance	250,02 sq. ft.	5,626 hrs.
Woodland Maintenance	520,422 sq. ft.	4,101 hrs.
Watercourse Maintenance	391,448 sq. ft.	3,047 hrs.
Total for Additional Hours of Maintenance		**13,834**

Estimated [illegible]s Needed for Maintenance by Task and Sector

	Sector I	Sector IIA	Sector IIB	Sector IIC	Sector III	Sector IVA	Sector IVB	Ttl. SqFt	Msf	Min/Msf	Hrs/Msf	Annual Freq.	Ttl. Hrs.
Woodlands													
Level I					58,784	203,790		262,574	263	15	66	52	3,413
Level II							257,848	257,848	258	8	34	20	688
Turf													
Level I	92,894	93,520	275,750	95,340	86,606	225,974	32,604	902,688	902	9	135	32	4,330
Level II		57,448	350,500		183,767	139,512		731,227	731	6	73	19	1,389
Level III		41,750						41,750	42	6	4	10	42
Meadows													
Level I													
Level II													
Athletic Fields													
Level I			108,592			93,632		202,224	202	45	152	20	3,033
Planting Areas													
Level I			11,690		34,736	13,861	12,024	72,311	72	30	36	20	723
Level II													
Level III													
Gardens													
Level I			33,948					33,948	34	230	130	32	4,164
Embankment Plantings													
Level I	14,905	43,537	42,001	31,563	58,742	24,215	35,070	250,033	250	45	188	30	5,626
Level II													
Level III													
Wetlands													
Level I		4,509		2,505	688	16	38,744	46,462	47	15	12	140	1,631
Perennials													
Level I							2,000	2,000	2	60	2	30	60
Watercourse													
Level I	24,716	48,096	62,792	39,412	91,516	76,820	48,096	391,448	234	20	78	39	3,047
Level II													
Trash Removal													
Level I	134,677	273,630	877,615	137,000	346,659	391,400	48,764	2,209,745	1,321	2	39	260	10,018
Level II													
Level III													
Paved Surfaces													
Level I													
Level II	14,329	77,872	105,444	31,062	346,659	7,816	8,350	591,532	354	2	12	30	354
Soft Surface													
Level I					3,340	10,822	20,708	34,870	21	20	7	30	210

min/msf - minues to perform 1,000 sq. ft of task

hrs/msf - minutes divided by 60

Annual Frequency - number of times/year task is performed

Estimated Hours Needed for Maintenance by Task and Sector

			Sector I	Sector IIA	Sector IIB	Sector IIC	Sector III	Sector IVA	Sector IVB	Ttl. SqFt	Msf	Min/Msf	Hrs/Msf	Annual Freq.	Ttl. Hrs.
Structures															
	Level I				33		688		10,400	11,121	11	60	11	20	220
Playgrounds															
	Level I			2,800						2,800	28	45	21	32	672
Graffiti Removal															
	Level I														
	Level II														
Site Furnishings															
10hrs/week x 42 weeks															420
Parkland/Canopy															
	Level I		25,700	67,200	89,600			47,200	16,000	245,700	246	12	49	72	3,542
	Level II					80,519	80,160			160,679	96	6	10	19	182
Total Sector Sq. Ft.			307,221	710,362	1,957,965	417,401	1,292,345	1,235,058	530,608	6,450,960					
Total Hours															43,765
Hours/Sector			2,084	4,819	13,283	2,832	8,768	8,379	3,600	43,765					

Task	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Woodland												
Litter pickup												
Pruning												
Turf												
Mowing												
Fertilizing												
Aeration												
Seeding												
Renovation												
Athletic Fields												
Mowing												
Field Prep												
Planting Areas												
Weeding												
Mulching												
Pruning												
Replacement Planting												
Gardens												
Weeding												
Irrigation												
Fertiliziing												
Disease Control												
Disbudding												
Embankment Plantings												
Weeding												
Mulching												
Pruning												
Replacement Planting												
Meadows												
Mowing												

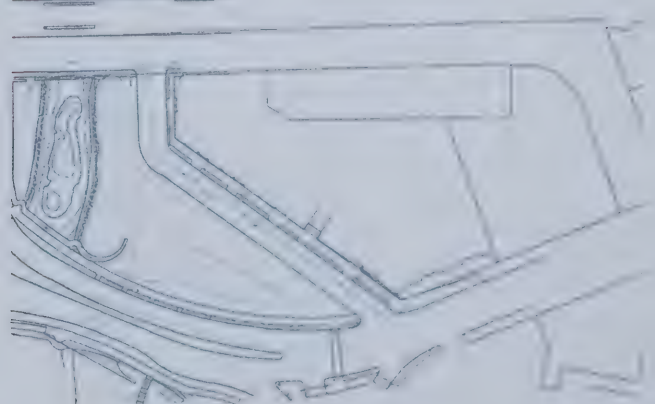
Task	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Perennials												
Weeding												
Pruning												
Replacement Planting												
Watercourse												
Litter pickup												
Remove Invasive												
vegetation												
Trash Removal												
Paved Surfaces												
Sweeping, Cleaning												
Snow Removal												
Soft Surfaces												
Erosion Repair												
Structures												
Repair												
Playgrounds												
Litter pickup												
Sweeping												
Equipment maintained												
Graffiti Removal												
Site Furnishings												
Inspections												
Repairs												

Emerald Necklace - Muddy River Parks

Levels of Maintenance by Task and Sector

Sector: I





Legend:

Turf:

- Level - 1
- Level - 2
- Level - 3

Woodlands:

- Level - 1
- Level - 2
- Athletic Fields
- Playgrounds

Emerald Necklace - Muddy River Parks

Levels of Maintenance by Task and Sector

Sector: I





Legend:

- Planting Areas - Level 1
- Embankment Plantings - Level 1
- Gardens - Level 1
- Watercourse - Level 1

Emerald Necklace - Muddy River Parks

Levels of Maintenance by Task and Sector

Sector: IIA



Emerald Necklace - Muddy River Parks

Levels of Maintenance by Task and Sector

Sector: IIA



Emerald Necklace - Muddy River Parks
Levels of Maintenance by Task and Sector
Sector: IIB



Emerald Necklace - Muddy River Parks
Levels of Maintenance by Task and Sector
Sector: IIB

Legend:

- Planting Areas - Level 1
- Embankment Plantings - Level 1
- Gardens - Level 1
- Watercourse - Level 1



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